

COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER, Editor

Volume 25

NEW YORK, JANUARY 17, 1924

Number 3

Quiet Business Boom Responsible for Coal Output Last Year Exceeded but Once in Time of Peace

ABUNDANT transportation and consistent demand characterized the soft-coal industry in 1923. The freedom from car shortage after the first quarter was remarkable in view of the large tonnage produced. The output reached in 1923 has been exceeded but once in a peace year, the total for 1923 of 545,000,000 net tons falling but 23,000,000 tons, or 4 per cent, below booming 1920. It is interesting therefore to compare the 1923 and 1920 records in other respects. Preceding both were large-scale strikes affecting nearly all organized bituminous-coal mines. Consumers' stocks on Jan. 1, 1920, following the six weeks' strike of 1919 were at or just below 20,000,000 tons; on Sept. 1, 1922, following the big strike, stocks were about the same level.

Both strikes were followed by periods of restocking, but with this great difference—in 1920 the railroads were unable to move the coal as it was offered, whereas in 1923 car supply improved from beginning to end. Frenzied bidding and buying of 1920 was replaced by quiet purchasing in 1923. From the beginning to the end of 1920 consumers' stocks were increased by around 27,000,000 tons; in 1923 with no fuss at all, not less than 29,000,000 tons was added to consumers' reserves. With all the frenzy that attended the accumulation of stocks in 1920, there was but 45,000,000 tons on hand at the end of that year. On the other hand, 1923 closed with around 65,000,000 tons in consumers' storage, a new high record for the end of a calendar year. It is anticipated that this figure will be even higher by April 1, 1924.

The fact that at the first of the year stocks had been piled up sufficient to afford on the average a safe supply—that is to say, nearly four weeks' requirements—and that thenceforth throughout the year there was no pressing necessity for coal on the part of any class of consumers or of any locality, was a most important factor in depressing the price. Consumers were willing to take the coal throughout the summer and autumn of 1923, but they were not in dire need and bought as the coal, at constantly lowering price, was forced on them.

It must not be assumed that because soft-coal prices were easy and stocks piled up, general industry was not humming. The consumption of soft coal in this country

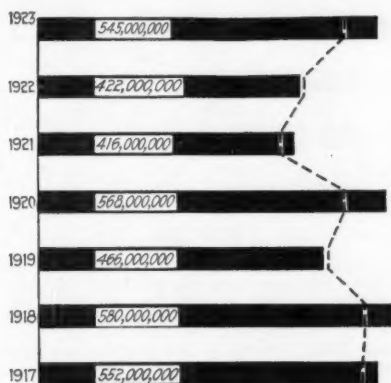
in 1923 was about 500,000,000 tons, almost identical in amount with the consumption of 1920. More coal was imported in 1923 than in 1920, but about 17,000,000 tons less was exported, which accounts for the seeming discrepancy. A measure of the industrial activity of 1923, as against 1920, is found in the figures of production of sixty-two commodities as reported by the Census in the Survey of Current Business. The production of these sixty-two commodities, which include coal and coke, was 9 per cent greater in 1923 than in 1920. The Federal Reserve Board reports a 10-per cent increase in manufacturing activity in 1923 over 1920. A few examples serve to indicate the widespread nature of this quiet boom in business and help account for the steady

demand for soft coal. Cotton consumption was 4 per cent greater in 1923 than in 1920, although textiles were considered dead last year. Pig-iron output in 1923 was 12 per cent greater than in 1920; likewise steel ingots, 12 per cent; copper, also 12 per cent; crude petroleum, 16 per cent.

It did not just happen that throughout 1923 the country consistently bought coal, irrespective of immediate requirements. There was definite national planning back of it. The Secretary of Commerce quietly but widely urged storage of coal by all industry. He appealed not once but repeatedly to business interests through their associations to be forehanded on coal purchases, to get supplies early and to forestall the usual autumnal rush and high market. Their response was equally unobtrusive, and were it not for the stock taking records of the government, it would be difficult to realize the extent to which this advice was followed. The railroads sponsored

the program—and have not ceased their efforts even at this date. With less than 7,000,000 tons on hand at the beginning of 1923, the railroads began in June an active campaign for coal storage. On Oct. 1 they had increased their reserves by 10,000,000 tons, or to 17,663,000 tons. They expect to have 20,000,000 tons on hand by April 1, 1924. If they but increase their reserve on wheels to what it was on April 1, 1922, they will have in excess of 22,000,000 tons.

Production of bituminous coal was regular throughout 1923. The best month, January, was 10 per cent



PRODUCTION AND CONSUMPTION

In this diagram the solid bars represent production of bituminous coal by calendar years. The dotted line is consumption. In but two years—1919 and 1922—of the seven from 1917 to 1923 was production less than consumption. In 1917, 1918 and 1923, all years of large production, there were substantial additions to stocks. In 1923, of a production of soft-coal in round numbers of 545,000,000 tons, 495,000,000 tons was consumed, 20,000,000 tons exported and 30,000,000 tons added to consumers' storage piles.

over the average; the worst month, December, was 10 per cent under, with a difference between them of but 9,000,000 tons.

Production of anthracite was at a high level in 1923. Inheriting a shortage from the long strike of 1922, the country was anthracite hungry. Demand was strong as the year opened and after a summer of exceptional output, the trade readily absorbed the output—following

the short strike in September—even at prices enhanced by reason of the wage increase given the miners by Governor Pinchot. Hard-coal production in 1923 was around 95,000,000 net tons, the highest in a peace year. Domestic sizes were the backbone of the trade, for steam sizes were off in price from April on, attendant on the lowering prices of soft coal, with which they were in direct competition in the steam trade.

Price Trend for Year Monotonously Downgrade

SATISFACTORY as was production of bituminous coal, prices were a disappointment. Spot prices ranged downward from an average of \$4.38 per net ton in January, dropping below \$3 in April to \$2.18 in December—that is to say, the market at the end of the year was half what it was at the beginning. There were no corresponding decreases in cost. The average spot price for the year was \$2.77, compared with \$3.67 in 1922 and \$2.55 in 1921.

Spot price, however, is not equivalent to average dollars realized by the operators. In the first place, the two figures are not strictly comparable, for the spot price is what the customer pays and is the operator's selling price enhanced by selling costs or middlemen's margin. In the long run, however, the discrepancy is not great. In boom years the spot price soars well above average realization because a majority of the coal is sold on a conservative basis, usually on contracts. Thus in 1920, when open-market prices for soft coal literally touched the sky, averaging \$5.64 over the year, the average actually received per ton was \$3.75.

But in periods of dull market the spot price descends below the contract price level, as in 1921, when the average spot price was \$2.55 and the average realized was \$2.89. In 1922, because of the shortage caused by the strike, spot prices mounted, averaging \$3.67, but realization was \$3.02 per net ton. The spot price in 1923 started high, as a holdover from 1922, but descended to a low point in December. The average spot price was \$2.77 and it is estimated that the average realized was about \$2.85, a few cents above the open-market quotations.

It cannot be argued therefore that 1923 was a prosperous year for the soft-coal industry. It is particularly significant that, after making allowance for increases in wages alone, the spot price of bituminous coal in 1921 and again in the latter part of 1923 fell below the pre-war record of 1913-1914. Labor cost alone considered, soft coal is now cheaper in the open market than before the war. It is small wonder then that the bituminous-coal industry is not facing 1924 in high spirits.

This unsatisfactory condition is solely due to the overdevelopment of the industry. The war inflation, huge in itself, has since been augmented by the forced development in the non-union fields attendant on the strikes in the union fields in 1919 and 1922. The boom of 1920 also was a contributing factor. The capacity,

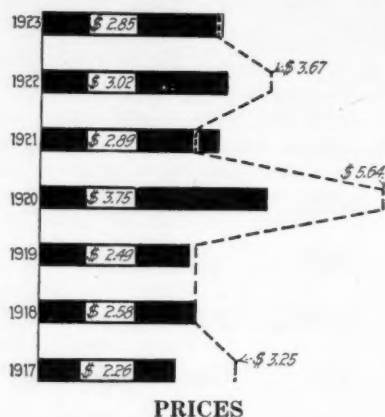
both as regards mines and labor, is such that 10,000,000 tons or more per week may be produced and yet the air be filled with complaints of idle mines and idle labor. The year 1923 has given us an excellent measure of the overdevelopment of the soft-coal industry. With a high total production spread almost uniformly over the twelve months, the days of idle time represent surplus capacity.

Distribution of coal was uniformly satisfactory in 1923. There were no hindrances to movement. Every section of the country has had soft coal forced on it.

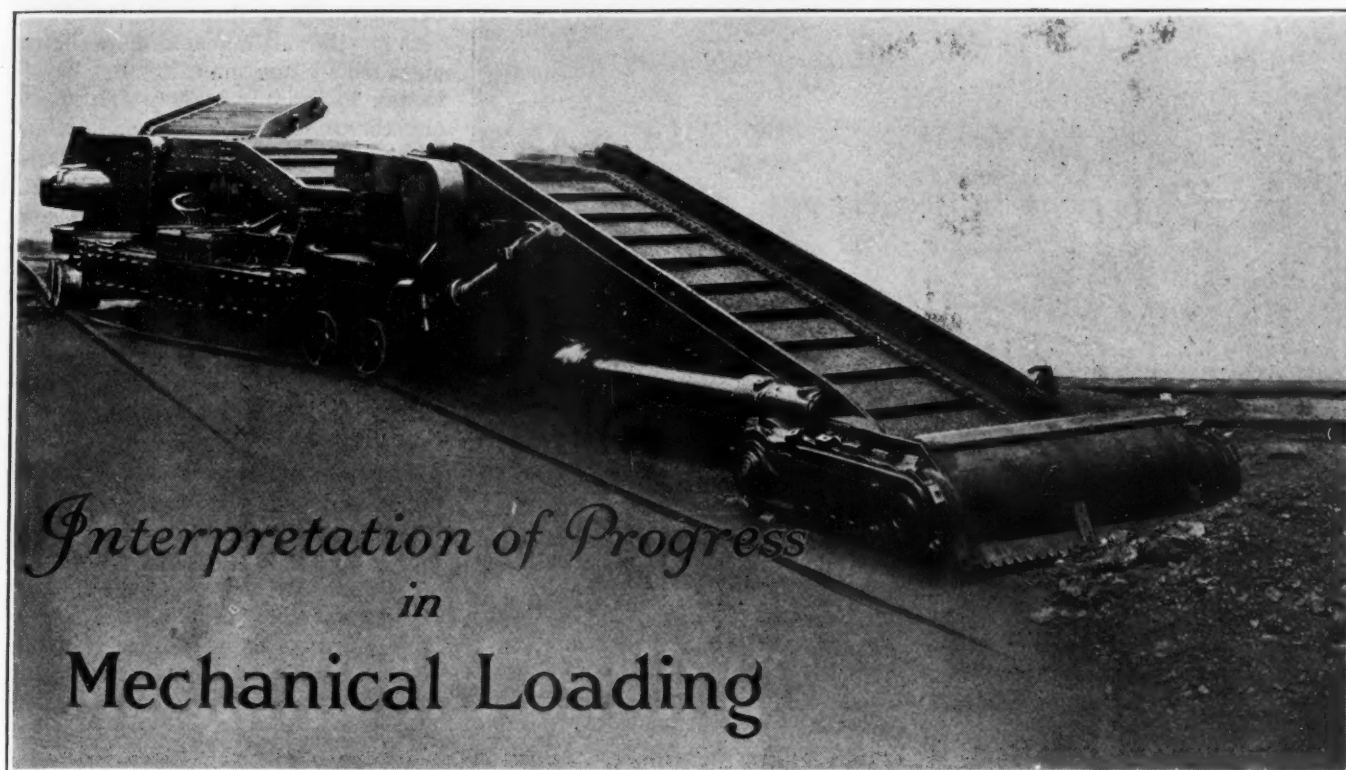
New England and the Northwest are glutted with fuel. The movement into the Northeast was stimulated by competition between the water shippers from southern West Virginia and the all-rail shippers in central Pennsylvania. Never was so much soft coal—about 32,000,000 net tons—dumped at lower Lake Erie ports for the Northwest trade. Illinois, Indiana and western Kentucky enjoyed an active summer, but entered the autumn and winter with markets stocked and little business. They are now feeling more than any other producing areas the effect of deluged markets.

Except the flare-up in anthracite in September, there was no labor trouble in coal in 1923. The bituminous wage contract signed in August, 1922, expired April 1, 1923, but no real difficulty was encountered in agreeing on a renewal. After some negotiations and considerable jockeying for position, the renewal was made for one year, instead of for two years, as some desired. This brings the expiration on March 31 next. At this writing there is much speculation as to whether a new contract can be agreed upon without a strike. It is useless to attempt a forecast. The miners obviously would in the aggregate profit by a two-year renewal of the present scale, as would the larger, more conservative operators. Another bitter contest such as that of 1922 would shackle the industry with still more development and put even further into the future that day of a more stable industry—if indeed it would not ruin the opportunity and postpone perhaps for a generation the possibility of the deflation so sorely needed.

Those who look only to the present and immediate future see the country overloaded with soft coal and all prospects gone of remunerative prices in 1924. To such there is no remedy save a forced suspension in the union fields—a shot in the arm to bring on the rosy dreams of low stocks, strong demand and high prices. Sentiment against a strike is gaining every day.



The solid bars and the figures in this diagram represent the average realization in dollars per net ton for bituminous coal, as reported by the U. S. Geological Survey, except that for 1923, which is an estimate. The dotted line shows the average spot price as reported by *Coal Age*.



Interpretation of Progress in Mechanical Loading

Loading Machines Appearing in Great Numbers—Types and Principles of Machines and Appurtenances—Interest at Last at Fever Heat—Many Questions Must Be Settled and Problems Solved

BY ALPHONSE F. BROSKY

Assistant Editor, *Coal Age*, Pittsburgh, Pa.

"WHAT is being done on the problem of machine loading?" is the question mining men are asking all over the coal field. The problem is receiving much practical demonstration as well as thought. It is about as commonly discussed as the prohibition question—at the mine, in the office, at meetings and on pullman cars. And it is not something new, as many are led to believe, for loading machines have been an expensive hobby of a few men for many years; only this year has the interest been national. Heretofore, development was intermittent and, at best, pulsating. Someone would conceive ideas of a coal-loading mechanism and then commence to build one.

Too often work would cease before the machine had been completed or soon after it had been given a half-hearted trial. Many machines that had a semblance of practicability failed to make headway chiefly because of lack of funds and of co-

operation from mine owners. Woodsheds, machine shops and garages have been the birthplace of many loading machines. The number of them is legion. How many are there? That is a difficult question to answer, as a veil of secrecy hides the development of many of them.

UNION IMPEDES INTRODUCTION

Progress is slow, as it must be, until sufficient momentum is gathered to sweep the industry. In a way, the move is marking time and will continue to do so, all the while gathering force, till such time as the barrier of opposition thrown up by the United Mine Workers no longer obstructs the introduction of such machines. It is gratifying, however, that practically all the mine owners assert that the day of the loading machine is at hand.

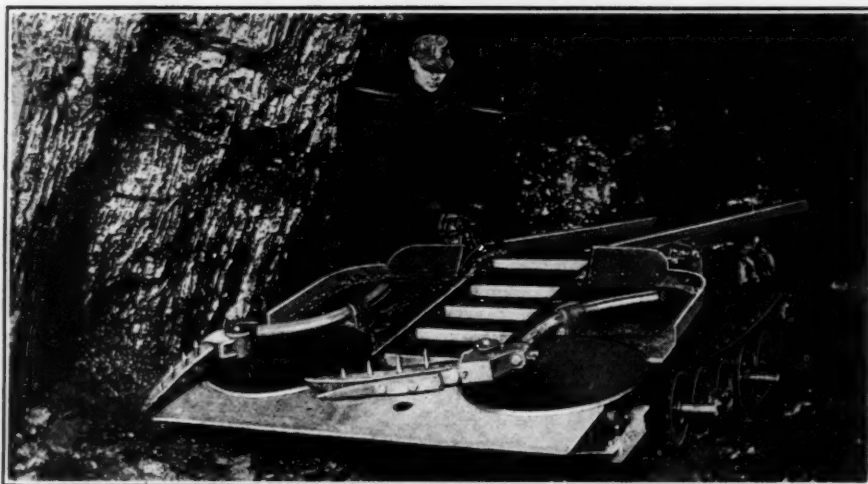
Sooner or later, it is believed, the miners' union will have to yield to economic pressure and agree to a reasonable wage scale for loading machines. With these assurances mechanical - loading devices and methods are developing with increasing rapidity. If the U. S. Coal Commission's reports did nothing

else, its efforts at least caused wider interest in the problem.

Before going any further it might be well to give a definition of a mechanical loader, applying it to the type in most general use. Strictly speaking, a mechanical loader is a machine that performs the greater part of the work of the human loader, one which is devised to transfer coal at the face to mine cars or conveyors, after the face has been cut and shot down, and to do that work with little expenditure of labor other than that required for the manipulation of the machine.

A mechanical loader will never be small enough or flexible enough to match the co-ordination of man's brains and brawn, but it can be made to approximate that ideal. The more nearly it does so the more successful is the machine. Other machines are being built in which the functions of mining coal are added to those of loading. These are known as combination mining and loading machines. Earlier types of these last-mentioned machines were designed to advance entries, but the dual functions of mining and loading are now being incorporated in

The headpiece shows the Oldroyd loading machine, which, unlike other machines, has three conveyors. To the head end of the loading boom is attached a revolving dipper to which are fastened two replaceable strips of steel, which throw the coal onto the lowest of the three conveyors.



JOY LOADING AND DIGGING MACHINE ENTERING ROOM

This machine is employed extensively under all sorts of conditions. Being perhaps the smallest loader in use, it is suited for low as well as high seams. The digging and gathering fingers resemble somewhat the claws of a crab and draw the coal into the conveyor trough.

machines which have as their function the production of coal and not merely the extension of roadways.

The mechanical running of the machines and their performance at work are based upon many principles. Belt or metal conveyors in almost all cases carry the coal from the front end of a machine to a mine car or another conveyor. These generally consist of two units suspended from the body of the machine, which operate independently of each other. For convenience and uniformity of expression in describing various types, the front conveyor is called the loading and the rear conveyor the discharging boom.

On almost all types of loading machines it has been found advantageous to give the discharging boom independently controlled vertical and horizontal movements and to provide only for the elevation or lowering of the loading boom. A few types are provided with a moving device on the head end of the loading boom to facilitate the transference of coal onto the discharging conveyor.

Gears and worms, air and hy-

draulic cylinders, rope drums, shafts and direct connections are the means used to impart motion from motors to the various elements of the machine. The machines travel on tracks, tractors or on the ground in the fashion of a cutting machine. They are made large or small, depending upon the conditions to be met and the whims of the inventors.

COAL COMMISSION'S STUDY

In its report on machine loading the Coal Commission makes reference to two definite machines, evidently of different make, estimating their capacities in eight hours under satisfactory working conditions as 500 tons for the large and 150 tons for the small machine.

It is quite likely that the commission speaking of the big machine refers to the Jones loader, of the Pocahontas Fuel Co., of West Virginia, for the reason that the average output of three machines for a particular shift of eight hours is 352 tons each, despite an actual working time of only 56 per cent. No other machine is known to be in use that has loaded coal at that rate over long

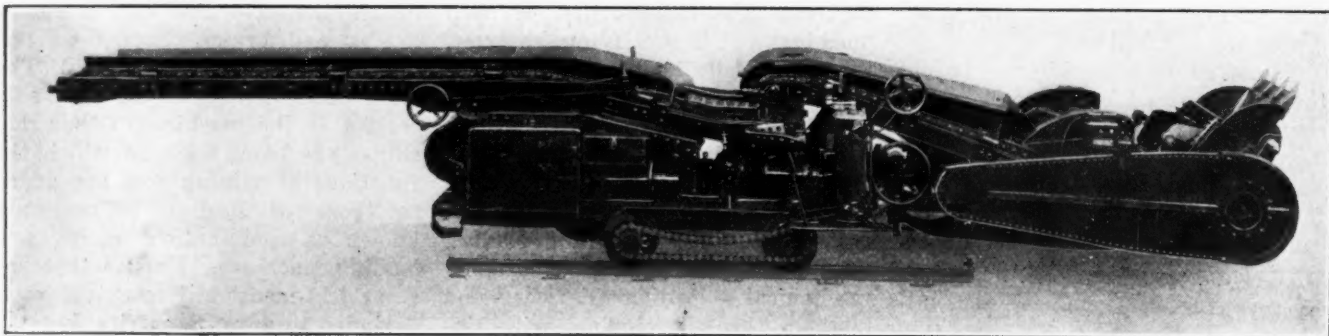
periods. When the commission refers to the little machine as being operated by one man, it must be alluding to the Joy loader. Throughout the report on machine loading, evidence is given that clearly fixes the identity of the two machines.

James Elwood Jones, of the Pocahontas Fuel Co., has for many years been working with a large loading machine in the Pocahontas No. 3 seam. This bed attains a thickness of 10 ft. of clean coal in the mines of this company. Working in thick coal he has demonstrated that loading could be successfully accomplished—even at this early stage of development—by room-and-pillar mining, where conditions are favorable. Because of the excellent results obtained in experiments, Jones loaders are being built at Columbus, Ohio, for use in the mines of this company. These mines are gradually being converted so that the entire coal may be loaded mechanically.

In the main the Jones loader resembles the types of machine in most general use, in that it moves from room to room on track and is arranged with loading and discharging booms suspended from the body of the machine. The loading boom is designed somewhat like the cutter arm of a cutting machine, under which is placed a wide slide pan.

In the chain which operates the loading boom are attached, in place of cutter bits, long arms which slide the coal to the discharging boom. It is a large machine, at present designed to load coal only in wide rooms and high coal. Its crew of twenty-two men attend to all duties relative to the mining, loading and hauling to a sidetrack of 500 tons of coal or more in eight hours. It has a record of loading a 4-ton car in one minute.

In its infancy the Joy loader weighed about 9 tons. The body of the early type was built about a large storage hopper, to which the



MYERS-WHALEY SHOVEL—A HEAVIER MECHANISM OF LARGE CAPACITY

A swinging shovel deposits the coal on the loading boom. The type shown here can be operated in a 4½ ft. seam of coal. It will also load rock, ore, clay or other loose matter with equal facility.

coal was fed by one conveyor and from which coal was discharged into mine cars by another. Believing a loading machine should be small enough to make it extremely flexible and so that one man can operate it, the designer eliminated the impracticable hopper, and reduced its size to that of the present Joy loading and digging machine, which weighs about $3\frac{1}{2}$ tons.

It has but one flight-conveyor pan, which flares out at the head end of the machine and is suspended on a tractor truck so that it may be raised or lowered. The flared-out section of the pan is provided with a pair of digging and gathering fingers which are geared and pinned to describe fixed orbital paths drawing the coal into the conveyor trough. Two hundred of these machines are distributed over Virginia, West Virginia, Indiana, Illinois, Kentucky, Colorado and Pennsylvania.

No better implement than a shovel is known for the hand loading of coal or other loose material. On the Myers-Whaley loading machine, developed fifteen years ago, the principle of a shovel is incorporated. Essentially it consists of a swinging shovel and two conveyors and travels and loads over a 20-ft. front from a mine track.

Both conveyors have lateral movement. The capacity of the shovel with a sufficient car supply is 150 tons per shift, operating in seams $4\frac{1}{2}$ ft. thick or thicker. A number of these machines are in use in coal mines of Pennsylvania, West Virginia, Indiana, Illinois and Colorado, and in rock and ore mines in this country and abroad.

Adoption of the caterpillar tractor



HOLMESTED COAL-LOADING MACHINE, USED AT HARDY COAL CO.'S MINE

In this machine the essential feature is a wedge held in an eccentric path by guides and made to move into the coal and back to the conveyor by a semi-flexible connecting rod from a drive crank.

to impart flexibility of movement in loading at the face and portability in traveling from place to place independently of mine track is a step forward in the development of loading machines. It enables the small loading machine, which does not have sufficient reach for loading from a mine track, to reach all parts of the face, and when thus applied it gives excellent service. George Dillig, of Pittsburgh, Pa., claims priority over all other designers in the use of this device, for in 1920 he mounted an experimental loading machine on caterpillar tractors. That machine loaded out 57 tons of coal in two hours from two rooms in the Hammill mine, near Pittsburgh, Pa.

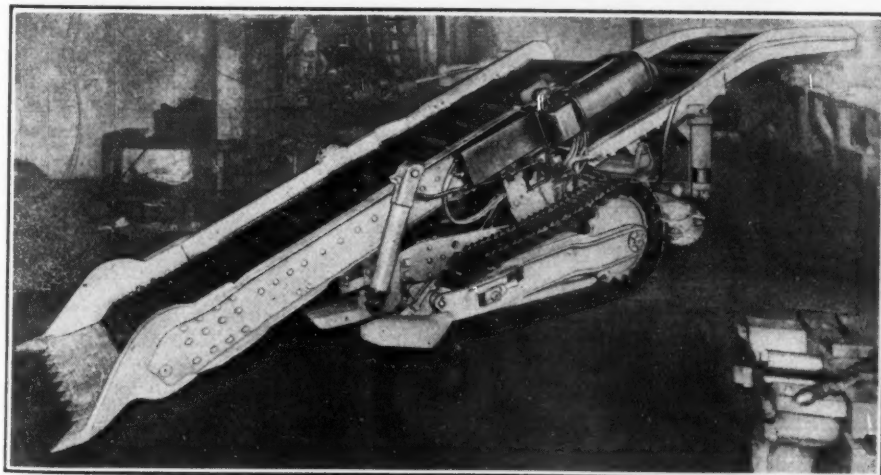
The Dillig tractor loader as developed today depends upon the powerful action of tractors to ram its nose under the coal to be loaded. This lifts the coal onto a loading boom which deposits it onto a discharging conveyor. The booms are lifted or swung by air jacks. At the present time several of these machines are being built less than 36

in. high for a large company in Pennsylvania. The Valley Camp Coal Co. is preparing to use a Dillig loader in its Kinloch mine, Parnassus, Pa., where plans are made for longwall mining in an isolated panel. The machine will work in the thick Freeport seam, which is topped with a hard roof.

At the Hardy mine of the Hardy Coal Co., of West Virginia, three Holmested loading machines are in use in room-and-pillar mining. Additional machines for the same place are in process of construction. The outstanding feature of this machine is a reciprocating wedge on the head end of the loading boom, which is thrust under the coal on its forward stroke and drags the coal onto the conveyor on its backward stroke. Reciprocation of the wedge in eccentric guides is accomplished by attaching to a crank a semi-flexible connecting rod. Its general features are similar to those of other loading machines. It will load at the rate of $1\frac{1}{2}$ tons per minute. All the machines already mentioned have been extensively used.

In the Oldroyd coal-loading machine are embodied several of the movements of an arcwall machine in cutting horizontally, as it travels on a track and may be fed straight in toward the center of a face in loading and may be swung also to either rib. The loader breaks the coal down and loads it at the face, and, for this reason, it is heavily constructed. It is equipped with three conveyors supported by two sets of swivel trucks for greater ease in rounding curves.

Coal is fed onto the front conveyor by means of a revolving dipper provided with two steel cutter plates spaced at an angular distance of 180 deg. to each other. The Oldroyd will load at a maximum rate of



DILLIG TRACTOR LOADER—ALSO SUITED TO ROOM-AND-PILLAR MINING

The ram nose of this loader is forced under the coal, which moves onto the conveyor, urged forward by the powerful thrust of caterpillar treads.

2 tons per minute. In one shift it has actually loaded 250 tons of coal in 2.4-ton cars at the Sumner No. 2 mine of the Pittsburgh & Erie Coal Co., Braznell, Pa., where the Pittsburgh seam is 7 ft. or more in thickness. Using a 4-ton wagon, 350 tons of coal could have been loaded out in eight hours.

Other loading machines than those mentioned are in all stages of development. The Wheeling Steel Corporation is developing an air punching heading machine. J. A. Forsythe, master mechanic of the Buckeye Coal Co., is getting ready to build a loading machine at Nemacolin, Pa. Another loading machine is being built at New Florence, Pa. The Jeffrey Manufacturing Co. has started work on a new type of loading machine; one about which little is known is still in the embryo stages of development.

Patrick J. McDonald, of New Cumberland, Pa., has taken out patents on a loading machine that employs the unusual arrangement of multiple-bladed collecting scoops which revolve and thus discharge coal onto a conveyor.

The Vesta Coal Co. and the Bethlehem Mines Corporation are each developing a loading machine. F. N. Wilson, of St. Louis, is constructing a mechanical loading device for the Southern Coal, Coke & Mining Co. It will be known as the "Wilson Chainloader." It has two sickle-shaped arms which, after gathering coal onto a flight conveyor, develop a half twist in two planes and are thus lifted above the loading conveyor. It will load from a mine track and will be built as low as 30 in. The smallest size will weigh

about 4,000 lb. No doubt many other loading machines are being designed or built, but regarding these information is not obtainable.

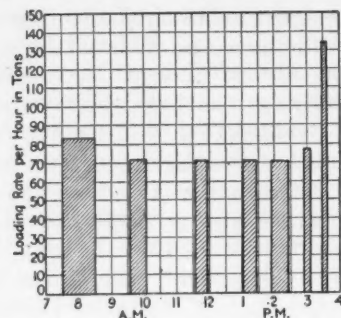
A few types of shovel loaders, such as the Shoveloder and the Hoar Baby shovel, are giving excellent service in handling rock where roof is brushed in coal mines, but these require more headroom than most seams afford and consequently at most mines cannot be used for loading coal. Their development, nevertheless, has benefited the industry.

There is a fight between two factions, one holding that present plans of mine layout, embodying the principle of rooms and pillars, cannot be changed; and the other, a bit dubious of the stand taken by its conservative opponent, maintains that modifications of longwall mining should be developed to prove or disprove the possibility of adopting the European system in the various seams of this country.

It is surprising the number of sound mining men who are now accepting the advice given many years ago by the longwall advocates, and who are either already experimenting or contemplating the making of experiments into the possibilities of longwall systems of mining. Men in the service of coal companies ranging from the largest to the smallest are members of the latter or minority party. Experiments in modified longwall are being conducted in seams varying in thickness from 3 ft. to that of the Pittsburgh seam. Longwall, by the way, is being tried in this seam.

Without doubt arrangements for loading coal mechanically must be developed, but opportunities for ap-

plying longwall methods, with their inherent cost-saving due to concentrated mining, should certainly not be overlooked. The geology of sedimentary deposits is pretty much the same all over the world, so that what



LOADING RATE, BUFFALO-EAGLE MINE

Shaded areas in diagram show loading rate in tons per hour for a single machine in test made Dec. 13, 1922. Machine with three men to operate it loaded 267 tons in 8 hours. The total operating time was 3½ hours and the rate of loading when in operation was 76.3 tons per hour.

is good for Europeans should, in a measure, be good for us also. However, it must not be forgotten that in Europe longwall is accompanied by backfilling, whereas we propose not to go to that expense. The burning question of machine loading is responsible for the beginning of this revolution. How it will end, only time will tell.

A loading machine has been manufactured expressly for loading from longwall faces. On this machine is a horizontal bar with cutting bits set around its periphery, which revolves so as to throw material in its path up to and on a conveyor that parallels the loading bar. It has several characteristics of the old shortwall cutting machine. It is not portable of itself and consequently in transit must be carried on a truck.

Like the shortwall undercutter also, the machine while loading is moved slowly along the face by ropes and jack pipes. It is said that it can be built to operate in seams as low as 2 ft. thick. This machine will easily load a ton a minute. In a test in a mine of the Buffalo-Eagle Colliery Co., Logan County, West Virginia, this machine loaded 267 tons of coal in 3½ hours of actual working time. The test was conducted by the Allotment Commission of the Chesapeake & Ohio R.R., which, in order to determine what would be a fair proportion of cars to allot a mine having such a machine, had a run made to ascertain its capacity under working conditions. A graphic chart of this performance appears above.



MINE CAR LOADER, DESIGNED SOLELY FOR LONGWALL MINING

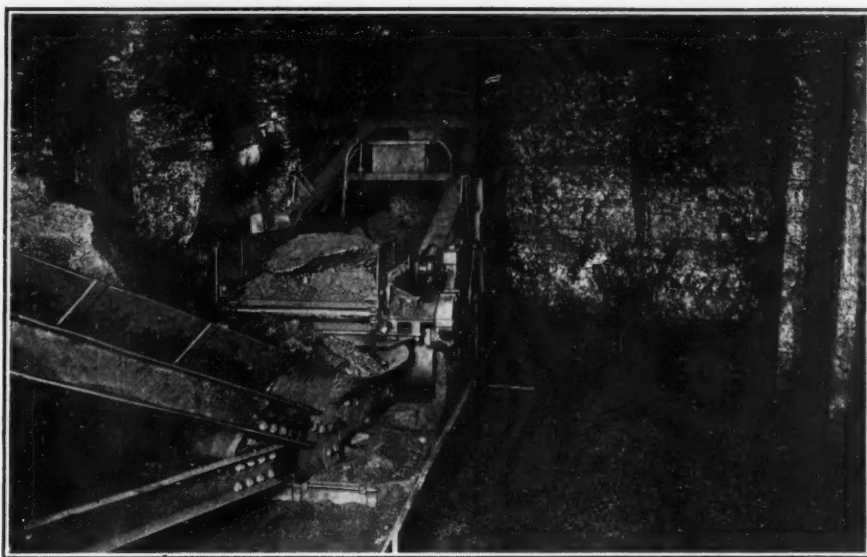
This loader consists, in the main, of a horizontal bar covered with bits, which on revolving throws material in the path of a parallel conveyor. It embodies several features of the old-type shortwall cutting machine, moving while loading as the latter moves in cutting.

Major recovery in mining cannot proceed any faster than entry development. For this reason progress in entry-driving machines must parallel that of loading machines. Because most entries are driven narrow, machines for consummating this work have almost invariably been conceived as combination mining-and-loading devices. The Jeffrey heading machine is designed and used for this purpose and makes a remarkable yardage.

It undercuts and shears simultaneously, and as the cutting progresses inward a reciprocating picking frame, the height of which may be adjusted while the machine is in motion, breaks down the coal. The coal falls on a conveyor pan on the bottom of the machine and is conveyed to a mine car in the rear. Entries can be driven to any width by taking successive cuts across the face. It has loaded as much as 30 tons in one hour.

One of these heading machines recently was installed at the Keystone Coal & Coke Co.'s mine, at Keystone, W. Va., on the Norfolk & Western Ry. For the last four months, I am told, it has driven entry at the rate of about 30 ft. in each eight-hour shift, and it has been shown that if it is given cars for continuous loading it will drive over 50 ft. in that period of time. One day when locomotives and cars were available for handling the coal, the machine advanced 53 ft. in seven hours and on several other occasions similar performances were obtained.

The machine will work well under any conditions where the coal is not much below 5 ft. in thickness and where the seam has not an excessive quantity of sulphur or other hard impurities that bits cannot cut. Four of these machines are being used in the Raleigh-Wyoming Coal Co.'s mine, the explosion that recently occurred in those workings



JEFFREY HEADING MACHINE FOR DEVELOPMENT WORK

This machine cuts two vertical kerfs and one horizontal kerf in the coal and then punches out the coal by five strong picks set in a solid frame. It makes three cuts in a wide heading. The rib line with its small offsets can be seen on the right.

being confined to an entirely different section of the mine.

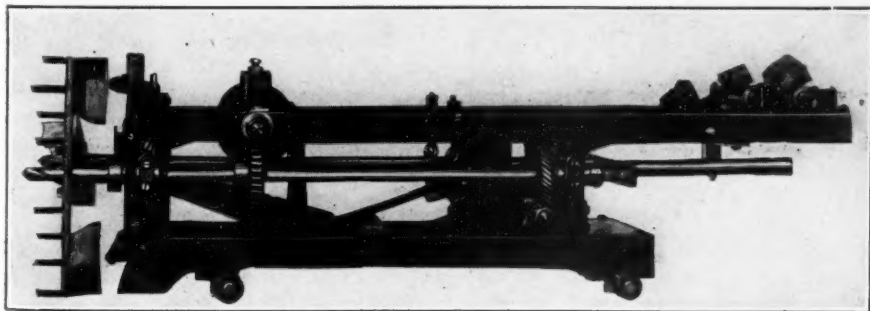
Another combination mining-and-loading machine now being manufactured is known as the McKinlay mining and loading machine. It inherits the principles of the old Stanley header. Briefly, two shafts project from the body of the machine, and to these are secured two arms which revolve somewhat after the fashion of a propeller. These arms are provided with bits that may be located at intervals from 6 to 12 in., depending upon the nature of the coal cut. The relative motion of the two shafts and arms is such as to permit the twin tunnels to overlap each other, cutting a double tunnel 10½ ft. wide.

The sectors between the two circular tunnels are cut by means of a horizontal saw arrangement. The annular rings circumscribed by the cutter bits generally break of their own accord; otherwise revolving wedge wheels tear them out. Barrier plates on the sides of the ma-

chine and buckets on the revolving cutter arms divert the coal into the path of a belt conveyor. This machine will advance at the rate of 3 ft. an hour and is operated by one man.

The difficulty of getting a sufficient and a continuous stream of mine cars to mechanical loaders in rooms is now the biggest drawback to more general use of these machines. This obstacle is being studied seriously by many men. Portable and inexpensive conveyors are thought logical in rooms that may be driven wide in high coal so as to yield a large output per cut. As many as three, and possibly four, cuts might be loaded out of a single room in eight hours. Then a trip of as many mine cars as are required to carry the tonnage from one cut can be spotted and moved at the room neck with little delay. Another remedy suggested is the use of two or more tractor hoppers which ply back and forth, receiving their cargo at the loading machine and dumping it into a trip of waiting mine cars at the neck of the room. This scheme has possibilities.

In November of 1922, before the Kentucky Mining Institute, I suggested the possibility of using a telescopic ladder conveyor of two or more units that might be extended or closed at will by means of racks or some similar arrangement. Interlocking gears could transmit power from one conveyor to another, the conveyors being played out from and supported by crossbars. Such a conveyor could be extended to a sufficient length to permit as many



McKINLAY AUTOMATIC COAL MINING AND LOADING MACHINE

Considering the work it must do, this machine is extremely simple. Revolving cutter arms and horizontal reciprocating saws mine the coal, which is scooped up and deposited in the path of a single belt conveyor by two buckets on each of the revolving cutter arms.

mine cars to run under it as are needed to load out a cut.

J. A. Forsythe, of the Buckeye Coal Co., recently developed a scheme similar in general principle to my proposal. When a loading machine moves into a room it pulls behind it as many as six mine cars, on the top of which are slung conveyor units, one on each car. Each unit is driven by an individual motor and all are tied together electrically by power cables controlled by push-buttons from the loading machine.

Each conveyor rides on a stilt frame, to the legs of which are attached small wheels. An elevated conveyor-frame track lies on the outside of the mine track. In passing over this outer track the conveyors are lifted from the mine cars. In loading, the mine cars are moved from and spotted under the end of the outby conveyor unit.

CONVEYORS CARRIED ON EMPTIES

For transportation purposes a trip of empties is backed under the conveyor units by a gathering locomotive, which is then uncoupled. In backing out of the room the loading machine pushes the conveyor frames from the elevated conveyor track and lowers them to a sling position on top of the mine cars, which move with them. The train is then ready to move to another room, having a supply of mine cars available for immediate use.

What are the possibilities of loading machines in the immediate future? Of first importance in this

connection is an agreement between miner and operator as to a wage scale for mechanical loading. In Illinois the operator is paying the cutting-machine rate to loading-machine operatives. In Indiana the pay of loader operatives runs as high as \$12.50 a day. In neither state has a piece-work rate been made for mechanical loading. However, in Indiana a joint committee of operators and miners was appointed in the spring of 1923 to formulate a scale, but thus far it has not concurred in any recommendation. It is certain that this question will be much to the fore during the coming wage-negotiation meetings scheduled for next month.

It is interesting to note the type of companies that are most absorbed in the development of mechanical loading. Who will derive the most immediate benefit from it? From present indications owners of captive mines are most active in this work. Large commercial coal companies generally are more or less indifferent as to what is transpiring in this new field of endeavor.

CAPTIVE MINES WELL EQUIPPED

Co-ordination of engineering talent in companies that both produce and consume coal is responsible to a large degree for the progressive management of captive mines. As E. W. Davidson points out elsewhere in these pages, captive mines usually are better equipped than those which sell their coal on the open market.

Preparation and sizing of coal re-

quired for various uses is a factor in the progress of machine loading. Steam coal, fired by stokers or pulverized and blown into boiler furnaces, can be loaded by machines which would degrade sized coal too much for domestic and other uses. Slack coal is actually desirable for byproduct coking. If loading machines are developed that are successful, save that they cause regradation of the coal, steel and other industrial companies will not hesitate to adopt them.

Loading machines will help to stabilize the industry by eliminating snowbird and high-cost mines.

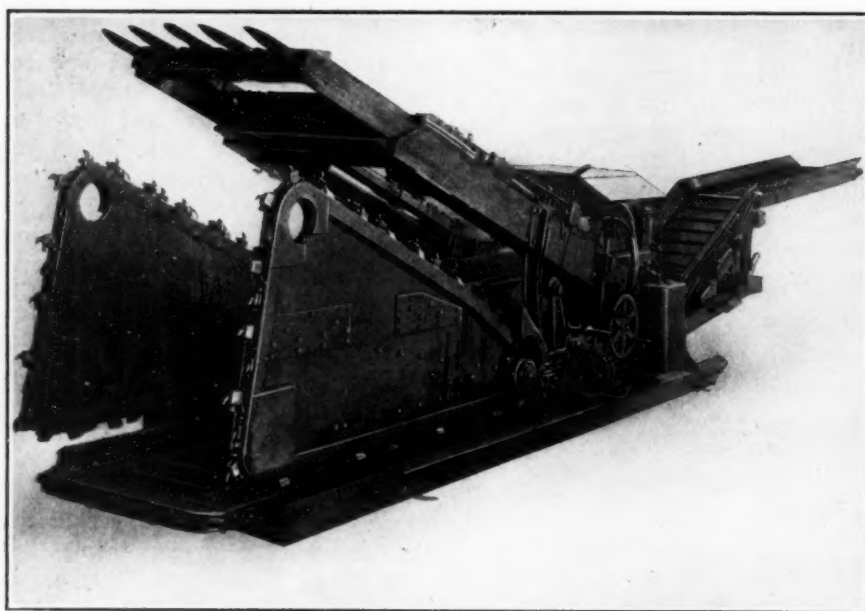
Consumption of Natural Gas Up 15 per Cent in 1922

In 1922 there was consumed in the United States 762,546,000,000 cu. ft. of natural gas, having an estimated value of \$84,873,000 at the wells and of \$221,535,000 at points of consumption, according to data compiled by H. Backus and issued through the U. S. Geological Survey. This is 15 per cent more than the quantity consumed in 1921 and 4 per cent less than that consumed in the record year, 1920.

Increased production is recorded for most of the states and in the leading five—West Virginia, Oklahoma, Pennsylvania, Louisiana and California—gains were made ranging between eight and twenty billion cubic feet. There were few changes in rank of the states in production, with the exceptions that Wyoming, with an increased output of more than 50 per cent, attained eighth place, passing Kansas; and that Arkansas, with an increase of more than 100 per cent, went from twelfth to tenth place, passing Kentucky and New York. But in consumption several of the leading states changed relative positions as compared with 1921. Pennsylvania regained first place, having dropped to third in 1921, Ohio changed from first to second, Oklahoma from second to third, California from fifth to fourth, and West Virginia from fourth to fifth.

The interstate movement of natural gas increased from 150,000,000,000 cu. ft. in 1921 to 179,000,000,000 cu. ft. in 1922. West Virginia, which contributed 25 per cent of the total production and consumed only 10 per cent, contributed 66 per cent of the gas that was transported to other states.

During the past few years there has been a considerable increase in the unit value of natural gas, the average value at the points of consumption increasing from 21.6c. per thousand cubic feet in 1919 to 29.1c. in 1922. The average value per thousand cubic feet of the gas used in domestic consumption increased more than 15c. in the past four years and in 1922 was 49.9c.



FRONT VIEW OF JEFFREY HEADING MACHINE, SHOWING PICKS

At the Keystone mine this machine has driven a heading 53 ft. ahead in 7 hours. With a conveyor to carry the coal to a roadway at right angles, or curving away from the machine-driven road, full trips could be loaded with elimination of waits and it is easy to surmise that the tonnage thereby could be greatly increased.

Are "Captive" Mines on the Increase?

Bulk of Opinion Is That "Low-Price Era" Is On and Fewer Steam-Coal Consumers Will Get Mines, but Other Consumer-Owned Tonnage May Grow—
Fourth of National Demand Already Lost to the Market

BY E. W. DAVIDSON

WHAT of captive coal?

For a generation bituminous fuel produced by consumer-owned mines has cut a swath in the coal industry of this country—much wider than many men in the coal industry have realized. In 1920 at least one-quarter of the entire bituminous production of the nation was captive. Since then it has undoubtedly increased a little. Probably the percentage fell back during the peculiar year 1923 because of the engulfing flood of cheap coal that finally closed down a number of captive mines; but what will be the trend of this captive coal in the future?

"Downward," promptly replies the great producer of commercial coal. "Yes, probably downward," agrees the railroader. But the industrialist comments thus: "I have an idea it will be somewhat upward because that has been the trend for quite a while. Enough big industries have profited in the long run by owning their own mines so that they will not quit mining after a single doubtful season." And there you are.

The commercial producer—his opinion is a cross-section of several commercial producers' opinions—whose sole business is the mining and selling of coal wherever it will sell, thinks captive coal will recede for several reasons. Metallurgical captive coal no doubt will continue strongly in the hands of its consumers—it is three-quarters in those hands now—but the army of steam-coal consumers will find in the future that the market and not the mine is the most satisfactory place to get fuel.

This will be true, says the commercial operator, because coal is going to be uniformly lower in the future and there will be fewer "emergency" peaks in the market. This will be brought about, he thinks, partly by more reliable and capable transportation and because he dares to think there may be less labor trouble. The seizure of union markets by lower-cost non-union fields, thus reducing union working time, is bound to have an effect, he believes.

With coal entering upon a cheaper

era, he holds, there will seldom recur a time when the steam consumer can afford to run mines. The lessons of the past few months illustrate the point perfectly. Captive mines had to quit because of the low price level of the market. Scores of them ran well into the autumn, loath to shut down and thus break up their organization, even though outside coal at far less than their cost of production pounded at their gates. Finally they could stand the pressure no longer, as in the case of the Standard Oil and Corporation mines in Illinois.

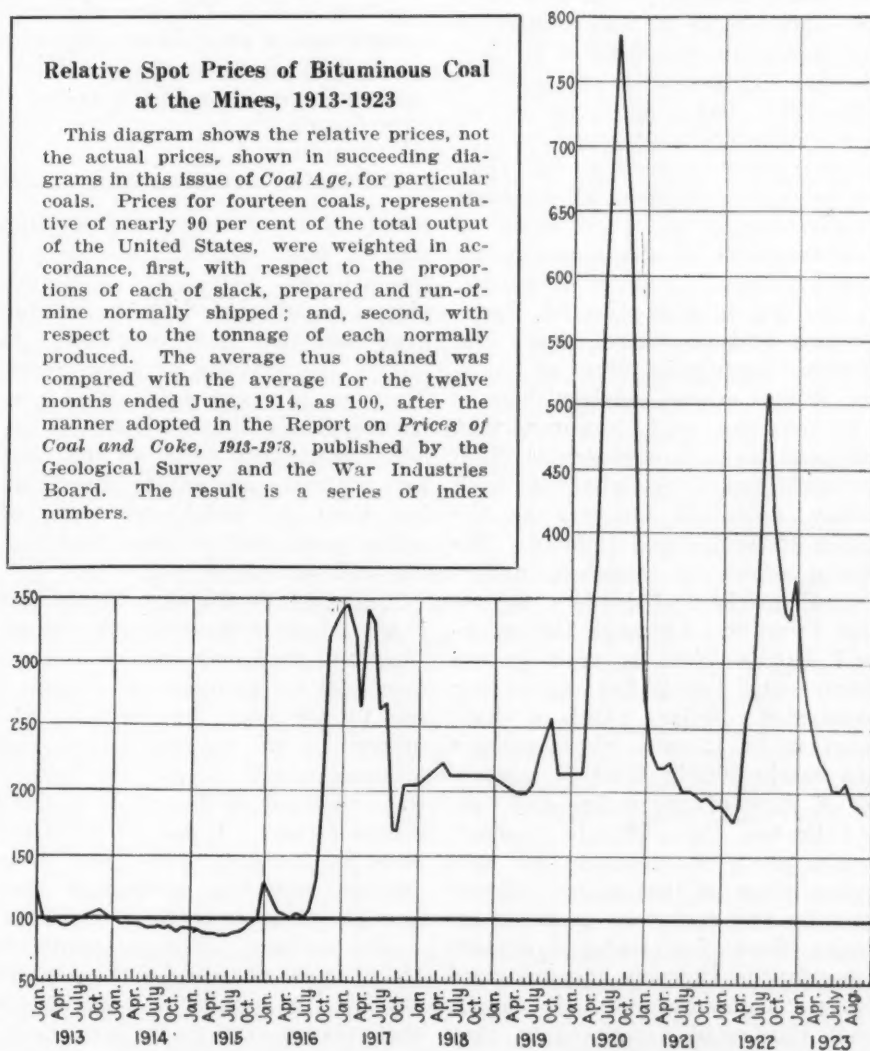
The oil company, with production costs at the mines near Carlinville, Ill., ranging up toward \$2, stood the strain until late November. Then it contracted throughout the Springfield district and Montgomery

County, Illinois, for enough screenings to supply the company's needs to April 1, at prices varying between \$1.05 and \$1.25. There was nothing else to do when other producers were glad to make such contracts. The central Illinois screenings market at the time was from 25c. to 40c. below those prices.

The Steel Corporation's great Middle Fork mine, in southern Illinois, went through about the same experience. It was operated at a loss for months and the corporation wished to keep on operating it, but lack of co-operation on the part of the miners finally exhausted an already sorely tried patience and the mine closed. The sale, soon after, of a wide acreage of Franklin County (Illinois) virgin coal lands,

Relative Spot Prices of Bituminous Coal at the Mines, 1913-1923

This diagram shows the relative prices, not the actual prices, shown in succeeding diagrams in this issue of *Coal Age*, for particular coals. Prices for fourteen coals, representative of nearly 90 per cent of the total output of the United States, were weighted in accordance, first, with respect to the proportions of each of slack, prepared and run-of-mine normally shipped; and, second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the Report on *Prices of Coal and Coke, 1913-1918*, published by the Geological Survey and the War Industries Board. The result is a series of index numbers.



which the steel interests had been holding in reserve, further indicates the attitude of the corporation toward digging its own coal in Illinois.

Then, too, the commercial operator holds the stock argument that the average industrial mine is less efficiently and less economically operated than the mine which depends for its life upon success in the fierce competition of the market. While this is not true in the East, there are many instances where it is true. A string of Midwest captive mines whose extraction is barely 39 per cent—lower by 4 or 5 per cent than that of neighboring commercial mines—is a case in point. The extravagant cost of shaft sinking and development work in another Midwest industrial mine, raising the cost of operation far above that of its neighbors, is another. These things are charged against a carelessness and lack of engineering knowledge that might not be found in a commercial mine.

CAPTIVE MINES MOST PROGRESSIVE

The outstanding fact cannot be overlooked, however, that, as a rule, the captive mine in this country is the leader in progressive mining. The industry behind it ordinarily is better able and often more willing to make heavy investments in good housing, as at Nemacolin, Pa., than the average commercial mine owner. Progressiveness in engineering is well exemplified at the now famous Lynch mines, in eastern Kentucky, in the Frick properties of Pennsylvania and elsewhere. Even the immense commercial mines of southern Illinois cannot outstrip them.

It must be said, however, that progressiveness in engineering often is handicapped by labor in such solidly unionized districts as the states of Illinois and Indiana. The strong effort to introduce underground mechanical loaders is one case in point. Although the unionized Middle West is keen to use them, only twenty-five have ever penetrated Indiana and a bare fourteen in Illinois, whereas there are nearly 100 in West Virginia—52 of them of one make—and only a little less than fifty in Pennsylvania, most of these in the non-union mines of that state. Maneuvers by the operators to get wage scales fixed for loader operators have failed. Down in the unionized Kansas fields the point is equally well illustrated by the fact that,

even after all these years, the union has not yielded to the demand for a cutting machine rate that is satisfactory.

The railroader quoted earlier in this narrative—being a composite railroader and not an individual—believes the wave of captive coal will recede largely because of the future ability of the railroads of the country to perform, and because he feels that sufficient control over coal is certain to be exercised, beginning in the immediate future, so that the days of weird coal prices are about over.

The railroader, like everyone else, can see sound reason why consumers that require a specific kind of coal should continue to own and operate

Complete reports for the year show the largest number of cars on record were loaded during 1923 with revenue freight. The total for the year was 49,814,970 cars. This exceeds by 4,696,498 cars, or 10.4 per cent, the previous record freight traffic, established in 1920. The number of cars loaded in 1923 in excess of 1920 would make a solid train more than 35,500 miles in length.

mines in even larger degree than they do now. But all consumers of steam coal, especially industrial plants, should not feel the mining urge that they had good reason to feel in the past six or seven years. The day of more substantial contracting, he thinks, is coming. When wild fluctuations occur in the market, contracts amount to something less than the well-known scrap of white paper, but he feels that that day will seldom reappear.

Railroads, he thinks, will add few if any mines to those already owned. They will need only enough of their own coal to maintain a balance—say 15 per cent. If anything, the proportion of railroad-owned coal production will drop. In 1920 it was one-third of the whole railroad consumption. Legal restrictions upon railroads dissuade them from further extending properties they may be operating on their own lines.

The average railroader points to the physical recovery of the nation's carriers to support his contention that transportation is sure to be

stronger than it ever was. He points to the fact that during the first eleven months of 1923 a total of 3,704 new locomotives were put in service on American lines as against 2,910 ordered on the best previous year, which was 1916. In 1922 no less than 180,154 freight cars were ordered, about a third of them being coal equipment, and up to Dec. 1, 1923, another 177,845 had gone into service. The American roads put one and a half billion dollars into capital expenditures during 1923, much of which counts heavily toward better movement of freight of all classes.

EQUIPMENT IN GOOD SHAPE

During the active and steadily busy year of 1923 the roads not only increased their motive power and number of cars but got equipment into as good shape for service as it has been in years. Locomotives awaiting heavy repairs Dec. 1 totaled less than 13 per cent, though 15 per cent is normal, and bad-order cars had been reduced to 5 per cent, which is nearly negligible. In spite of car surpluses in some parts of the country during the later months of 1923, which held cars idle, the average per-day car mileage was approximately 30, a year ago is as low as 20.

Such coal roads as the Louisville & Nashville and the C. & O., both chronically handicapped by lack of facilities when coal runs heavily, and the Illinois Central have notably strengthened their positions by adding trackage and terminal space that will count directly for the benefit of coal movement, not to speak of their additional power and cars. Most other roads serving coal fields have made special efforts to increase their coal-moving facilities, which, with the general improvement of receiving lines, practically guarantees excellent transportation of coal, for the immediate future at least.

Turning back to the ideas of the industrialist—another composite character—who thinks captive coal mining will increase somewhat, we are invited to contemplate Henry Ford. That genius of gasoline has built a vertical trust which requires the inclusion of coal as one of the raw materials. There are other vertical trusts, the industrialist says, that will go into coal just as Ford has. That will be one big source of expansion for captive coal.

Of course Ford faces market problems which he has not yet solved and

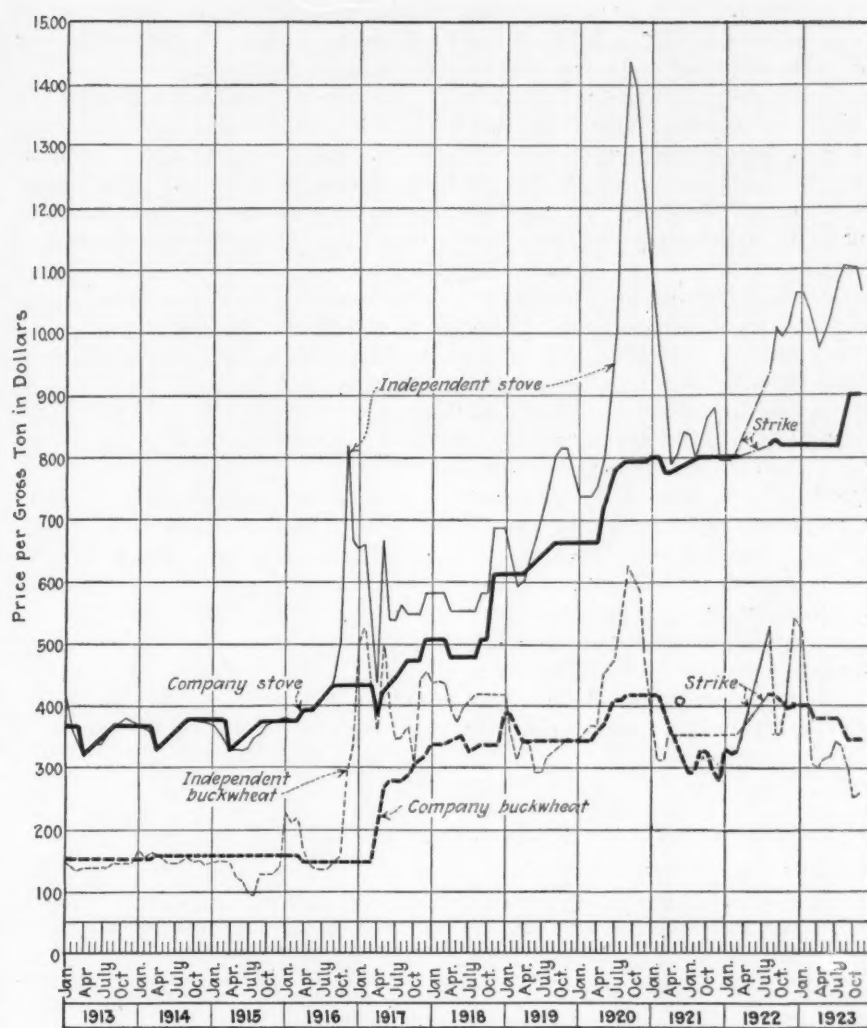
which possibly every other such enterprise will have to face. He has a surplus of production over his own needs. Per ton costs mount steeply when mines do not operate regularly. So Mr. Ford, on occasion, has forced coal at prices above the market onto unwilling buyers who sell him automobile parts. That helps to keep up his running time and to keep down his costs. But it is radical marketing and there is no assurance that he or anybody else operating captive mines will always find themselves able to unload by the same expedient.

This sort of thing will count heavily against captive mines in times of low market, but the industrialist's answer is that many vertical trusts of the future may be able to hold their coal productive capacity down to about the level of their own consumption and thereby escape the difficulty of disposing of surpluses.

He does not realize, however, as does the veteran coal producer, that lump coal must bring lump prices at any mine, lest the property's revenue fail to meet the costs of operation. The mine that crushes all of its lump deprives itself of a good earner.

The industrialist points also to the public utility as a probable wider owner of coal mines. The great public utilities, consumers of both steam and gas coals, have long been in the coal fields. Notable among them is the West Penn Power Co., with its Springdale coal operations close to Pittsburgh, Pa., all controlled by the American Water Works & Electric Co., Inc. Another example is the Insull interests, owning the Commonwealth Edison Co., of Chicago, and controlling the Northern Illinois Public Service Co., the Central Illinois Public Service Co. and other big power groups throughout the Middle West. The coal consumption of such utilities as these runs into millions of tons annually, supplied by such mining companies as the new Industrial Coal Co., with two Franklin County (Illinois) mines: the Utilities Coal Corporation, operating mines in Central Illinois, Harlan County, Kentucky, and Logan County, West Virginia, and other mining properties operated principally by the Peabody Coal Co., of Chicago.

One other source of additional operators of captive mines which the industrialist thinks about are the owners of commercial coke plants. He is not thinking of coal coked directly by the steel interests but of byproduct corporations. The By-



Anthracite Prices for Eleven Years

This diagram shows in dollars per gross ton the average company circular prices and average spot quotations on "independent" stove and buckwheat sizes of Pennsylvania anthracite at the mines. Prices shown are averages of the range as quoted on the New York market.

Products Coke Corporation, of Chicago, capable of carbonizing 1,500,000 tons of coal in one plant at Chicago, now draws coal from the Solvay Collieries Co.'s mines in West Virginia and the Black Mountain Corporation mine in Eastern Kentucky. Other standard coking companies attached to the Solvay or Koppers interests also are increasing their consumption of coal and low-temperature distillation could very well add a long line of coking plants all over the country which the industrialist pictures as divided into ownership groups that will want to operate coal mines. He is counting on an adjustment of railway freight tariffs to permit the coking of coal on through rates.

So much for what is visioned for the future. What exact information is there on captive coal of the past? Unfortunately, the body of information is not exact but approximate data compiled by and for the U. S. Coal Commission is illuminating.

One of the outstanding facts about the captive mine is that it averages far better running time than the ordinary commercial mine and somewhat better time than even the best of commercial operations. The accompanying table showing operating time of consumer-owned mines compared with commercial mines for both 1920 and 1921 is enlightening.

Quoting from the U. S. Coal Commission report on "Relief from Irregular Operation and Overdevelopment": "Consumption of bituminous coal was abnormally low in 1921. The soft-coal mines of the country worked an average of 149 days, or about half time. Consumer-owned mines quite generally averaged well above commercial mines. The regular connection and the interest of the consumers in maintaining regular output at their mines thus gave these mines better operating time in a year when lack of market was the controlling factor in the operation of all soft-coal properties."

"The production of iron and steel was at low ebb in 1921 and the mines connected with that industry made a correspondingly poor record. But the railroad-owned mines and those controlled by public utilities and industrials operated well above the average. Second only to the captive mines in regularity of operation were those owned by large, well-established commercial operators. Thus in Pennsylvania a group of 159 captive mines average 185 days, compared with 176 for the large commercial coal operations, 135 for all others and 151, the average for the state. Captive mines in Kentucky average 85 days more work than large commercial operations and 91 days more than the small mines.

"The record of the large commercial operators in Ohio is better than any other group because they are shippers of Lake coal. The large commercial operators in Virginia and Ohio worked more days than the captive mines in either Pennsylvania, West Virginia, Illinois and Indiana. The best records in 1921 were made by public-utility-owned mines in Pennsylvania and West Virginia."

How much advantage in cost of production has the captive mine? From the table of comparative working time of captive and commercial mines in the seven states for 1921 it can be computed that the average number of days worked that year by captives was 179.5 or an average of 14.95 days per month, compared to only 147.7 or 12.3 days per month, by the commercials.

A Coal Commission curve based on 1921 data from 119 mines scattered over the country shows exactly how the percentage of cost per ton rises in proportion to the loss of working time. It assumes 25 days a month to be full working time and takes that as its 100-per cent base. According to it, production costs at a mine working 15 days a month are 13 per cent above the base, and at a mine working between 12 and 13 days a month costs would mount 20 per cent above the base. By such cal-

culations the captive mine has an average of 7 per cent advantage over the commercial mine.

This 7 per cent looms large when applied to the output of, say, a million-ton captive mine and a million-ton commercial mine. The average spot price of soft coal for 1921 was \$2.55. If an average mine cost were assumed to be \$2 for the captive mine, its entire output for the year would total \$2,000,000, as compared to \$2,140,000 for the commercial mine, or a margin of \$140,000 in favor of the captive.

INTERESTING CAPTIVE-MINE DATA

In 1920, according to a study made by C. G. Duncan from data partly estimated and otherwise open to revision, captive mines in this country produced 139,148,000 tons of soft coal, or 24.6 per cent of the country's total. They contributed 22.2 per cent of the total shipments of raw coal and 61.9 per cent of the total that was made into beehive coke at the mines.

Steel companies are shown to be by all odds the largest holders of captive mines. The output of mines affiliated with the steel industry totaled 75,232,000 tons for that year. This is about three-quarters of the entire coal consumption of the industry.

Railroad-owned mines that year produced 46,705,000 tons, which was about 8 per cent of the national total and approximately 30 per cent of the total coal consumed by railroads. Industrial consumers of various other classes owned mines that year which produced about 8,500,000 tons, or 12 per cent of the amount of coal used by industrial plants other than those of the steel industry.

Geographical distribution of captive-mine tonnage shows that the heaviest captive production is by the Connellsville region of Pennsylvania—the great coking field serving the steel industry—Alabama, Illinois and the Far West. Consumer holdings in the Connellsville region are so extensive that they produced in

1920 about 31 per cent of the entire Pennsylvania output. In Alabama the captive-mine output was 46 per cent of that from the whole state, and in Illinois, 27 per cent. More than half the Far Western coal is mined by railroads and metallurgical companies. In Washington, Montana and New Mexico the proportion is about two-thirds, in Utah more than 50 per cent, in Wyoming 40 per cent and in Colorado about 38 per cent.

Production by the steel-company mines for years has kept pace almost exactly with the increase in total production of soft coal in the nation. Captive coal has increased also under the ownership of manufacturers of brick and other refractories, glass, paper, oil, cement and chemicals. Almost every industry with a coal consumption of 200,000 tons a year either owns mines now or has owned them in the past; but it is a notable fact that a number have taken fliers in coal only to let go at the first opportunity. This was true recently of a Pennsylvania cement concern which bought a West Virginia mine only to quit it for the open market.

Many a wise coal observer foresees that a good many of the smaller industries that now dig captive coal will soon quit the game. The prophecy for low priced steam coal during the next few years certainly is a discouraging one for any steam-coal consumer who thinks of getting into coal operation. The indications are that the prophecy will, in general, be borne out. Then it remains to be seen whether a shrinking proportion of captive steam coal will be counterbalanced by an expanding proportion of gas and special coal before the industry can determine which way captive coal is bending its course.

Commercial producers, who already see more than 25 per cent of the whole coal demand of the country taken out of the market by captive mines, today are counting on good rail service, less labor trouble and fewer future market peaks to preserve for them the remaining 70 to 75 per cent of the trade of the nation.

Captive Mines Work When Commercials Cannot*

Captive Mines	Days Worked								Days Worked							
	Pa.	W. Va.	Ky.	Va.	Ohio	Ill.	Ind.		Pa.	W. Va.	Ky.	Va.	Ohio	Ill.	Ind.	
	1921								1920							
Iron and steel.....	177	151	260	134	140	170	225	Iron and steel.....	284	212	232	305	276	254	281	
Railroads.....	195	179	224	...	157	174	189	Railroads.....	246	205	217	...	181	236	188	
Public utilities.....	236	258	175	...	...	180	165	Public utilities.....	239	237	217	...	...	223	184	
Industrials.....	205	167	203	...	212	196	...	Industrials.....	241	257	218	...	211	226	...	
Average.....	185	180	228	134	161	175	193	Average.....	272	223	226	305	191	238	211	
Selected large well established commercial operations.....	176	158	143	189	182	144	159	Large commercial operations.....	240	203	204	282	183	195	185	
Other commercial operations.....	135	144	137	143	118	147	116	Other commercial operations.....	236	194	174	234	189	210	193	
Total.....	151	149	152	166	136	152	128	Total.....	244	199	183	264	188	213	193	

* This table, compiled by the U. S. Coal Commission, shows the average days worked in 1920 and 1921 by groups of consumer-owned mines in seven states, compared with days worked by mines depending on the market. The advantage to captive coal rolls up a considerable margin against commercial coal. The average for 1921 is 7 per cent lower cost at captive mines.

Engineering Achievements Outstanding Features Of Mining Progress in 1923

Organization of Engineering Forces—Greater Use of Mechanical and Electrical Horsepower—Increased Application of Automatic Equipment—Higher Efficiencies in Material Handling

BY EDGAR J. GEALY
Associate Editor, *Coal Age*

EVERY year impresses more forcibly on the coal industry the paramount importance of mechanical and electrical engineering and equipment as factors in production. More and more the mine approaches the ideal of a large machine operated by power generated at the mine mouth or at some distant station and controlled by push buttons and switches from the surface. We are a long way from such an ideal, and doubtless will never wholly attain it, especially in some mines and at the mine face, but time, patience and effort will bring it appreciably nearer.

In earlier years the engineer was largely a man who obtained by machinery a certain given result—at what cost of energy was regarded as a minor consideration; the wonder was that the result could be accomplished with any expenditure of power. Nowadays engineers are going over the equipment and finding where power is being wasted. Many engineers are engaged not so much because of their ability to construct plants and indeed to run them but because they are able to save money in their operation.

Operators are beginning to realize that having the machinery that will do the work as and whenever they want it done is not enough. Devices or systems are needed that will enable the work to be accomplished not merely effectually but economically. This kind of service differentiates the mere engine runner and electrician from the mechanical and electrical engineer.

As the engineer has come into his own he has made many changes and much progress in the handling of his work. Engineering staffs have materially increased, more technical men skilled in engineering theory are found in the organizations. The work of the staffs has been systematized. Records, data, charts and tabulations tell the story of each machine.

Following the example of the

power-plant industry, more efficient and reliable meters and recording equipment have been developed and applied, so that the engineer is able to ascertain definitely what any new arrangement, equipment or device will save him and can base his action not so much on his judgment or his preference as upon definite findings which will enable him to state just what can be saved by any given change in methods or equipment.

The modern engineer keeps data on the machinery he has replaced. He obtains photographs of the old and new installations. His operating records tell him what he can do under new conditions, duplicating those he has formerly controlled, and also prove the success of his plans after he has put them into effect. These methodical ways of planning and conducting his work have not only contributed to the efficient performance of his labors but have been the means of promoting confidence in his ability to economize and in consequence have enabled him to obtain the necessary funds for more elaborate systems of operation and control.

AUTOMATICITY SPREADS

During the year just past the use of automatic equipment and devices was greatly extended. Control apparatus were perfected and applied for the purpose of eliminating the difficulties that accompany manual operation. It is true, few radical changes were made in either design or construction, but the number of applications of electricity to mining was greatly increased.

By changes in design higher efficiencies were attained in many types of machinery, and corresponding advances made in the control apparatus to be used with it. These changes in detail in each instance may not have been great, but owing to the number of machines in use in the mining field the aggregate advance is of great potential economic value.

This year's developments in haul-

age equipment have consisted of greater refinement in mechanical and electrical detail. The outstanding features have been better tracking qualities, improved spring suspensions, greater battery efficiencies and such improvements in control as have resulted in lowered power losses.

Dynamic braking has been more generally applied. Locomotives of 25- to 30-ton capacity have been equipped with contactor control, ventilating fans and air brakes. By the use of ball and roller bearings mine cars when made up into larger trains than usual have been handled with ease. In many cases by these changes the need for large and for more locomotives thereby has been obviated. In fact, heavier loads than heretofore have been handled with smaller locomotives and hoist motors, thus effecting savings in power-generating equipment and power costs.

Almost everywhere the comparative figures available show that the friction load of anti-friction bearing cars is about one-fourth that of cars with ordinary sleeve bearings. Many records show even better results and point to great possibilities of further advance in the new year.

Last year equipment was designed for the largest coal hoist in the world, the drive consisting of two 2,000-hp. motors. Aside from the more extended use of hoisting equipment of small and extremely large size the most important progress in hoists has been in the application of accurate control and of dynamic braking.

Under several conditions heretofore considered practically impossible for efficient electrical control, hoisting systems have been developed that are capable of handling various loads at extremely low and high speeds with a minimum expenditure of power and without special complicated control. At the present time one coal company is seriously considering the develop-

ment of a complete automatic hoisting and dumping installation controlled by the footman at the level from which the cars are being hoisted.

The H. C. Frick Coke Co. is installing a belt conveyor over four miles long for transporting coal from the mine workings to the shipping station. It consists of twenty sections, each driven by induction motors varying in size from 50 to 75 hp. All are of the wound-rotor type. Solenoid brakes are provided for stopping and holding the conveyor belts when the power is cut off from the motors.

The control is so arranged that the motors start in sequence, beginning always at the delivery end, so that no coal can be delivered by a moving belt onto one that is standing. As each motor reaches full speed it trips a switch which energizes the starting circuit of the next succeeding motor. If any motor stops, it automatically stops all the motors preceding it in the conveyor system but allows those following it to run and clear the belts of any coal in transit.

In the pumping field this year we have seen the perfected development of the primed, started and controlled centrifugal pumping station. This complete equipment obviates the necessity for an attendant. So complete is the automatic control that it will work not only when the pump is in normal operation but under circumstances which would be likely to cause a breakdown. The pump begins to operate as soon as the water in the sump has risen to a predetermined height and automatically stops when the water has fallen to a level similarly predetermined.

For small gathering pumps a valve has been developed which automatically opens when the water in the sump reaches a height sufficient for pumping and closes when the water recedes to a point where pumping should stop. With this device a single pump may be arranged to unwater several areas by means of an octopus suction system.

An important development of the year which will greatly affect fan drives was the building of an alternating-current brush-shifting motor with shunt motor characteristics. This machine gives adjustable speed without auxiliary apparatus and permits large savings of power during the night and in idle periods when the fan may be slowed down. This motor is designed to run normally

at a low speed. It fills a long-felt need for an adjustable-speed alternating-current motor that will be simple and the speed of which will be virtually independent of its load.

Such rapid strides have been made in power-plant generation that today it is a relatively simple matter to obtain a kilowatt-hour of electrical energy from the consumption of two or two and a half pounds of coal. With the further development of the mercury boiler and turbine it is highly probable that some of the best power plants under favorable load conditions will be able to generate a kilowatt-hour of energy per pound of coal.

Where water conditions are favorable many large coal-mine power plants are operating at very low costs. These plants have an advan-

The engineer is no longer regarded as a spender but as saver of money, and many notable improvements in power costs have been made, with increases in efficiency, during the last year.

tage over those in other industries, for the fuel they use is sometimes that which is cleaned from the roads and as it must be gathered to keep the tracks clear its cost to the mine power plant often is only the charge for conveying it to the power house. In many plants the small sizes are used which are inevitably made in the production of marketable coal. In this instance also the power-plant charge for the fuel is only the cost of preparing and conveying it to the furnaces.

The automatic substation has continued in popular favor, as is evidenced by a growing tendency to make the converting station automatic and thus obtain a reliable power supply for direct-current equipment. New features added to this equipment have broadened its field of application and made for greater reliability.

More converting stations have been placed inside the mines where they can be closer to the load and deliver better voltage with less power loss. Where the seams are thin and the mining progresses rapidly there is a growing need for portable power-converting substations, large companies having many

important mines finding it more and more necessary to have such equipment for emergency service. As the application of electrical machinery increases the demand becomes greater for a flexible power system. Ease of operation, control and repair has definitely favored the installation of the motor generator over the rotary converter.

Large power-consuming apparatus in the mine is now being fed through heavy high-voltage cables. Alternating current has been more extensively carried into the mines, voltages as high as 2,300 and 4,000 volts now being common. Feeder cables have been removed from the usual wet and dangerous hoisting shafts, and where the water is highly acidulous are now being installed in separate boreholes lined with iron or even terra-cotta pipe.

Marked improvement has been effected in the operation of portable machinery such as coal cutters, loaders, room hoists and cable-reel locomotives, thanks to the use of all-rubber insulated portable cables. In many operations where the ordinary portable cable would be dangerous and economically impossible all-rubber cables have proved their worth and established their practicability.

The mining field has been given special consideration by the electrical manufacturers, who have more fully recognized the hard service mining equipment must withstand. Special insulation and winding impregnation is now given to such motors and control equipment as are to be used in the mine. By this process it is easier to prevent moisture from causing delays.

Anti-friction ball and roller bearings have been adopted for many types of motors, thus effecting higher efficiencies and eliminating serious delays and damage that result when acid water, dust, dirt, sand, etc., enter the bearings.

The Fynn-Wechsel induction motor, capable of correcting lagging power-factor and operating at high power-factor on loads which must be motored higher than the average load condition would require, opens up big opportunities for correcting the low power-factor loads usually found around coal mines.

With these achievements in the past year and with indications of further expansion and application markedly discernible we are entering the new year confident that it will show even greater progress than those which have preceded it.

Marked Increase in Tidewater Coal Business Does Not Reflect Natural Growth

Gain of 9,000,000 Tons in Dumpings at Atlantic Ports Represents Emergency Requirements Both at Home and Abroad—Ruhr Controversy Brings Short-Lived Boom in Export Trade

By J. S. BURROWS

Of Castner, Curran & Bullitt, Inc., New York

THIRTY-SEVEN million net tons of bituminous coal was dumped at the five Atlantic Ports in 1923. This total shows a substantial increase of nine million tons over 1922 but does not reflect any natural growth when compared with the preceding years since the war. In other words, there is no new business that has come to tidewater shippers in recent years other than emergency requirements at home as well as abroad.

On coastwise business the ports are in keen competition with each other for the existing business, while all new markets abroad are closed to American coal by high freight rates and unfavorable money exchange.

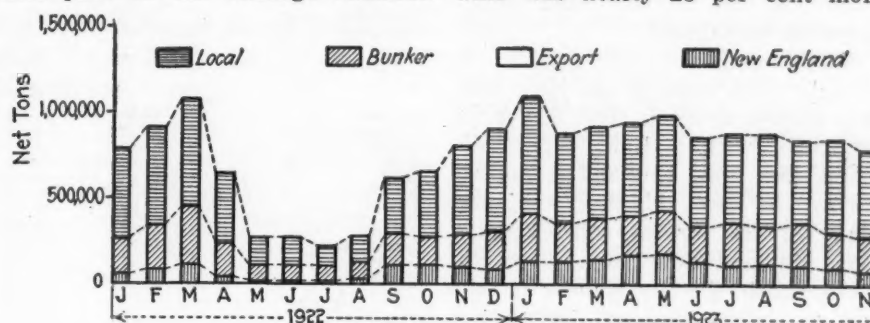
RAIL RATES HAMPER EXPORT TRADE

Fuel oil has been such a tremendous factor in restricting the use of tidewater coal all along the Atlantic seaboard that the only room left for expansion is in the export trade. Those engaged in trying to sell export coal are convinced that the strongest barrier in the way today is the high rail rates to tidewater ports and they believe that if rail rates on coal for export could be reduced by 40 to 50 per cent, sufficient export business would result to compensate the railroads through the greater volume of tonnage handled.

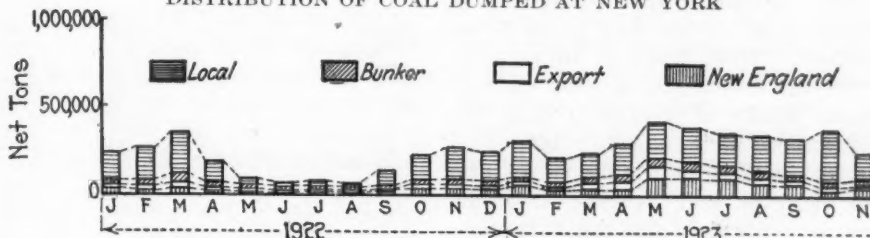
In the year just closed, export business showed an improvement over 1922, which year, however, showed the lowest tonnage in many years. This business came—mainly to Baltimore and Hampton Roads—in the "emergency" occasioned by the early developments in the Ruhr controversy. The new business remained throughout the summer months and departed as suddenly as it had come, when the "emergency" was past and the purchasers were able to re-establish their regular connections abroad.

About 5,000,000 tons was exported overseas in 1923 as compared with 1,600,000 in 1922, and nearly 22,000,-

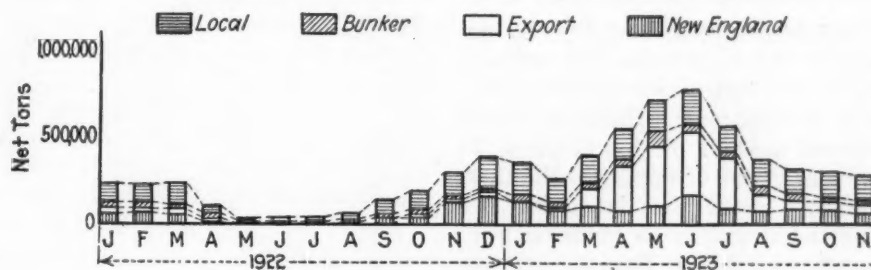
000 in the banner year of 1920, when it was thought that a strong foundation had been laid beneath our export prospects and that a considerable part of the tonnage obtained that year would continue. The bunker business, at the ports under consideration, accounted for a dumping of nearly 5,500,000 tons last year. This was nearly 25 per cent more



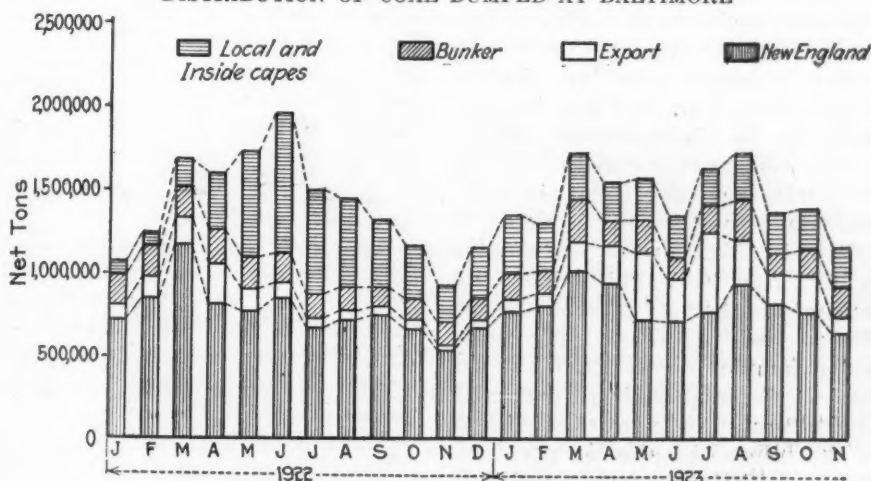
DISTRIBUTION OF COAL DUMPED AT NEW YORK



DISTRIBUTION OF COAL DUMPED AT PHILADELPHIA



DISTRIBUTION OF COAL DUMPED AT BALTIMORE



DISTRIBUTION OF COAL DUMPED AT HAMPTON ROADS

than in the previous year and may be regarded as a normal tonnage in this direction.

The coal trade felt the competition of oil first in the bunker business and over a period of years has seen one great liner after another convert to oil, with the result that the mainstay of the bunker business today is the tramp ship and older boats engaged mainly in freighting. Consequently the tonnage varies from year to year in accordance with the trend of the general export and import business of the country and to a very large extent depends upon the relative price of coal and oil, as many ship owners to not hesitate to change from one fuel to the other under favorable conditions.

Tidewater business usually is thought of in terms of the New England market and it is true, of course, especially with a light export demand, that New England is the objective of the tidewater shipper. Many of the largest consumers in New England now burn oil exclusively and in the late months of 1922 and the early part of 1923 other plants stocked up heavily with British coal, which they found satisfactory. New England in general, however, was much in need of adequate stocks of coal following the bituminous strike and throughout all of 1923 took in sufficient coal to build up reserves and provide a goodly margin of safety for the future.

13,000,000 TONS TO NEW ENGLAND

Thirteen million tons, or 35 per cent of the total tidewater tonnage, was loaded into vessels for New England destinations. Hampton Roads enjoyed the bulk of this business, 55 per cent of the dumpings of the three Hampton Roads piers being for New England account. As compared with former years New England tonnage in 1923 exceeded both 1921 and 1922. The other divisions of tidewater statistics, namely "Inside Capes" and "other tonnage" vary but slightly from year to year and may be compared in the accompanying tables.

With respect to the position of the five ports, they show about the same percentages of the total business in 1923 as in 1921. Owing to the strike in 1922, New York, Philadelphia and Baltimore, being most affected, slipped back as coal-loading ports while Hampton Roads dumped 58 per cent of the total business, but with the restoration of normal conditions in the mines the affected ports returned to their customary positions,

although it will be seen that Baltimore made a considerable gain in the past year over 1921.

Prices at loading ports throughout the year have been governed entirely

by supply and demand. At the beginning of the year there was a general shortage of railway equipment and a strong demand for coal, so that the highest prices were obtained

Destination of Bituminous Coal Shipped to Tidewater In 1923, by Months

(In Net Tons)						
NEW YORK						
	New England	Exports	Bunkers	Inside Capes	Other Tonnage	Total
January.....	135,000	.....	284,000	.....	712,000	1,131,000
February.....	134,000	1,000	226,000	.....	536,000	897,000
March.....	138,000	.....	249,000	.....	537,000	924,000
April.....	171,000	.....	230,000	.....	549,000	950,000
May.....	182,000	1,000	250,000	.....	565,000	998,000
June.....	138,000	.....	217,000	.....	503,000	858,000
July.....	120,000	1,000	247,000	.....	514,000	882,000
August.....	135,000	.....	204,000	.....	546,000	885,000
September.....	132,000	.....	236,000	.....	480,000	848,000
October.....	113,000	.....	196,000	.....	542,000	851,000
November.....	95,000	.....	186,000	.....	500,000	781,000
December.....	113,000	.....	180,000	.....	500,000	793,000
Total.....	1,606,000	3,000	2,705,000	.....	6,484,000	10,793,000
PHILADELPHIA						
January.....	68,000	.....	31,000	215,000	.....	326,000
February.....	41,000	9,000	30,000	143,000	.....	223,000
March.....	48,000	29,000	38,000	149,000	1,000	265,000
April.....	41,000	53,000	45,000	176,000	.....	315,000
May.....	115,000	74,000	45,000	198,000	.....	432,000
June.....	120,000	50,000	42,000	191,000	1,000	404,000
July.....	114,000	34,000	42,000	186,000	.....	376,000
August.....	85,000	26,000	53,000	198,000	.....	362,000
September.....	75,000	28,000	40,000	204,000	2,000	349,000
October.....	54,000	14,000	29,000	191,000	.....	288,000
November.....	69,000	5,000	28,000	174,000	.....	276,000
December.....	64,000	23,000	33,000	156,000	1,000	277,000
Total.....	894,000	357,000	456,000	2,181,000	5,000	3,893,000
BALTIMORE						
January.....	146,000	5,000	30,000	174,000	14,000	369,000
February.....	99,000	10,000	21,000	129,000	8,000	267,000
March.....	105,000	111,000	28,000	145,000	1,000	390,000
April.....	82,000	248,000	42,000	163,000	3,000	538,000
May.....	114,000	329,000	65,000	180,000	9,000	697,000
June.....	178,000	339,000	55,000	180,000	1,000	753,000
July.....	98,000	275,000	48,000	131,000	3,000	555,000
August.....	75,000	106,000	32,000	140,000	5,000	358,000
September.....	80,000	65,000	31,000	132,000	4,000	312,000
October.....	85,000	48,000	19,000	144,000	3,000	299,000
November.....	70,000	63,000	21,000	120,000	4,000	278,000
December.....	70,000	31,000	28,000	121,000	2,000	252,000
Total.....	1,202,000	1,630,000	420,000	1,759,000	57,000	5,068,000
HAMPTON ROADS						
January.....	768,000	70,000	161,000	68,000	264,000	1,331,000
February.....	795,000	78,000	129,000	68,000	218,000	1,288,000
March.....	1,039,000	232,000	168,000	71,000	203,000	1,713,000
April.....	928,000	225,000	150,000	38,000	202,000	1,543,000
May.....	718,000	405,000	182,000	32,000	219,000	1,556,000
June.....	708,000	252,000	137,000	53,000	182,000	1,332,000
July.....	756,000	481,000	163,000	40,000	176,000	1,616,000
August.....	927,000	356,000	151,000	64,000	219,000	1,717,000
September.....	813,000	176,000	123,000	21,000	227,000	1,360,000
October.....	758,000	225,000	146,000	28,000	222,000	1,379,000
November.....	632,000	151,000	140,000	25,000	197,000	1,145,000
December.....	787,000	212,000	169,000	13,000	225,000	1,406,000
Total.....	9,629,000	2,863,000	1,819,000	521,000	2,554,000	17,386,000
CHARLESTON						
January.....	9,000	8,000	7,000	.....	8,000	32,000
February.....	16,000	8,000	6,000	.....	3,000	33,000
March.....	5,000	12,000	6,000	.....	.....	23,000
April.....	10,000	9,000	1,000	.....	.....	20,000
May.....	.....	38,000	5,000	.....	5,000	48,000
June.....	.....	31,000	2,000	.....	.....	33,000
July.....	.....	18,000	1,000	.....	.....	19,000
August.....	.....	27,000	2,000	.....	4,000	33,000
September.....	.....	35,000	2,000	.....	.....	37,000
October.....	.....	21,000	1,000	.....	1,000	23,000
November.....	3,000	37,000	3,000	.....	1,000	44,000
December.....	.....	25,000	3,000	.....	1,000	29,000
Total.....	43,000	269,000	39,000	.....	23,000	374,000
ALL PORTS						
January.....	1,126,000	95,000	513,000	457,000	998,000	3,189,000
February.....	1,085,000	106,000	412,000	340,000	765,000	2,708,000
March.....	1,335,000	384,000	489,000	365,000	742,000	3,315,000
April.....	1,232,000	535,000	468,000	377,000	754,000	3,366,000
May.....	1,129,000	847,000	547,000	410,000	798,000	3,731,000
June.....	1,143,000	672,000	453,000	424,000	688,000	3,380,000
July.....	1,088,000	809,000	501,000	357,000	693,000	3,448,000
August.....	1,222,000	515,000	442,000	402,000	774,000	3,355,000
September.....	1,100,000	304,000	432,000	357,000	713,000	2,906,000
October.....	1,010,000	308,000	391,000	363,000	768,000	2,840,000
November.....	869,000	256,000	378,000	319,000	702,000	2,524,000
December.....	1,034,000	291,000	413,000	290,000	729,000	2,757,000
Total.....	13,374,000	5,122,000	5,442,000	4,460,000	9,123,000	37,521,000
Per Cent.....	35	14	14	12	24	

in the early months. As railway service improved and coal became more plentiful at the piers, prices steadily declined from month to month until coal could be bought in the late autumn and early winter at a price below the cost of production. As a result, many mines which ship to tidewater have closed down.

At the beginning of the new year the tidewater shipper is confronted with heavy stocks of coal in New

England and along the coast, and with continued inroads of oil fuel everywhere in his accustomed markets at home he realizes that he must turn to new territory. This means export markets, and if he cannot enter these markets at even present below-cost prices, some help will have to come from the other end of the coal business—the railroad people—in the form of lowered transportation charges on export coal.

No Adjustment of Northwest Freight Rates Despite Hullabaloo

Flood of Complaints Anent Alleged Inequalities Brings About Only Trifling Changes—Examiner's Report Favors Docks Over Rail Shippers—Protest Delays Effective Order

A GREAT hullabaloo about freight rates offered some serious diversion from the business of competing for markets in the Northwest in 1923. No adjustments were made during the year however. The docks made a struggle to get either a reduction of their own rates inland or an increase in competing rail rates. Following the filing of a complaint with the Interstate Commerce Commission for such relief, all the other factions interested in Northwest trade hurried to file counter complaints so that the Commission consolidated five of them and heard them together in six busy days beginning May 2.

The first complaint was I.C.C. Docket 14,476, by the Northwest Dock Operators' Association, attacking past adjustments of rates from Illinois (more particularly from southern Illinois, whose competition was most keenly felt) to points in Iowa, Minnesota and the Dakotas as being unreasonable. The rate on lump is \$3.47 and on fine coal \$3.29. The second complaint was I.C.C. Docket 14,622, by the South Dakota Board of Railroad Commissioners, seeking lower rates on South Dakota fine coal into various regions. The third was I.C.C. Docket 14,533, by the Sioux City (Ia.) Chamber of Commerce, asking lower rates to that city both from Duluth and from Illinois. The fourth was I.C.C. Docket 14,477, by the C. Reiss Coal Co., asking for the benefit of the Lake Michigan docks, that the Holmes and Hallowell scale be applied to Illinois coal meeting Michigan dock coal within the State of Michigan. The fifth was I.C.C. Docket 14,142, in which Illinois, through the

Illinois Traffic Bureau, asked for the adjustment of inequalities in rates to local stations from Lake Michigan docks and from northern Illinois.

The dock operators, in their attack on Illinois rates to the Northwest, pointed out that since 1917 the commission had increased rail-lake-rail coal rates \$1.74 while increasing Illinois and Indiana rates only \$1.17 to the same territory. It was their principal argument. Wayne Ellis, the new secretary of the dock association, surprised the rail men with the brevity of his argument, which consisted mainly of placing in the commission's hands a mass of records supporting a case based upon the theory of rate making adopted by the commission in its own decision on cement rates. The main Illinois contention was that the rates in existence are so high now as not to give Illinois producers an equal chance at Northwestern markets.

Dock interests said they hoped for a change in rates to be made before the end of the 1923 season, record breaking though such speed would be. As a matter of fact an examiner's report was filed in the autumn recommending in effect that very little change should be made in the rate fabric as between Northwestern docks and Illinois and as between Lake Michigan docks and inland points, but it was greeted only by protests from all hands, which were formally filed. Up to the end of 1923 no further definite action had been taken by the commission. All sorts of pressure was exerted by North Dakota to obtain a more favorable rate for its lignite, but that, too, remains in abeyance.

In general, the docks interests

were favored over rail shippers in Examiner C. I. Kephart's report, filed Aug. 3, but which has been protested and has not been ordered into effect. The recommendations begin with one that would reduce rates on coal going off the Lake Superior docks 10c. a ton on short distances up to 35 miles, and ranging down to 1c. on distances up to 350 miles. Rates from Lake Superior docks to certain points in northern Iowa would be reduced 17 and 18c. Rates from both docks and Illinois to Sioux City would be reduced in varying amounts from 22 to 36c.

Rates from Lake Michigan docks to points in South Dakota would be reduced in amounts ranging from 38c. at Chamberlain to \$2 at Rapid City. The relation between rates from the various Lake Michigan docks into Wisconsin would not be disturbed. The Commissioner found, however, that the rates from southern Illinois and Lake Michigan docks to Wisconsin points are unduly prejudicial to dock shippers and preferential to shippers in southern Illinois in small accounts.

Another diversion was the assault which the Federal Trade Commission made upon the Northwest Dock Operators' Association. Late in April this commission formally cited the association for conspiracy to suppress competition and create a monopoly in the sale of anthracite and bituminous coal at wholesale and retail in the Northwestern territory. The complaint alleged both violation of the Federal Trade Commission Act by reason of unfair competition and the Clayton Act by price discrimination.

The charges included these: Comparing price lists and agreeing upon them before making them public; blacklisting retailers; selling coal in the Twin Cities, which is keenly competitive territory, at prices less than those charged for the same coal in Duluth; undercutting competitors to force them to join the association; compelling purchasers to use their coal only for purposes outlined in the contract; declining to take certain municipal business so that local retailers might have it; refusing to sell coal to dealers not possessing the usual yard equipment.

The dock association, of course, denied undue price fixing, efforts to restrain trade and create a monopoly and everything else illegal. The case dragged along through the late summer and autumn with no decision by the end of the year.

Spot Coal Prices for 18 Years: What They Reveal

Violent Fluctuations of Post-War Days in Striking Contrast with
Preceding Decade—Business Prosperity and Depression Reflected—
Car Shortages, Strikes and Threats of Suspension in Evidence

BY F. G. TRYON AND W. F. MCKENNEY*

READERS of *Coal Age* have learned to use and to value the index of spot prices of bituminous coal developed by the present editor of the paper. The principal landmarks of the curve of spot price appearing weekly in the market review—the sudden rise in 1916, the peak of early 1917, the plateau that marks the Fuel Administration's maximum price, the extraordinary peak of 1920, the depression of 1921, and the secondary peak of the strike year 1922—all these are familiar to students of the coal trade.

In fact, to a great many people—perhaps to the average citizen—these violent fluctuations in price, particularly the peaks of 1917, 1920 and 1922, typify the whole coal industry. Consumers are inclined to judge the industry by what has happened since 1916, ignoring the decade of uneventful history before. To do so, however, may give quite a misleading impression both as to the stability of the industry and the profits of the owners, and also as to the outlook for changes in price.

It is, therefore, of more than merely curious interest to trace the course of spot prices into the pre-war days, which we still think of as "normal," whatever that may mean. A recent study made by the Geological Survey, in co-operation with the President's Conference on Unemployment, has pieced together the best available information and carried the record of monthly spot prices back to 1906. The results are shown in diagram 1.

The diagram reveals at once an extraordinary difference in the course of prices before and after 1916. It is not merely that the war has raised prices to an entirely new level—a new tableland, as it were, the low points of which are practically twice as high as the old level—the notable thing is rather that the shape of the curve has changed. The extraordinary peaks and valleys of the post-war curve are conspicuously absent in the years preceding 1916.

*Published by permission of the Director, U. S. Geological Survey.

That the coal market was subjected to the play of disturbing factors in those days is indicated by the notations in the upper part of the diagram, which explain the ups and downs of the curve. The alternating prosperity and depression of the business cycle affected spot prices then as now, but not, perhaps, in the same degree. Thus the financial panic of late 1907 was shortly reflected in a decline in the price of coal, and the price remained relatively depressed during the dull year

Monthly Average Spot Price of Bituminous Coal, F.o.b. Mines, 1906 to 1912

(In dollars per net ton)

	1906	1907	1908	1909	1910	1911	1912
January.....	1.10	1.28	1.09	1.06	1.24	1.16	1.14
February.....	1.09	1.21	1.07	1.05	1.23	1.11	1.22
March.....	1.27	1.14	1.05	1.04	1.25	1.08	1.64
April.....	1.46	1.12	1.05	1.05	1.26	1.06	1.30
May.....	1.21	1.11	1.03	1.03	1.19	1.05	1.11
June.....	1.14	1.10	1.03	1.02	1.18	1.05	1.09
July.....	1.06	1.10	1.02	1.00	1.18	1.03	1.04
August.....	1.11	1.13	1.04	1.00	1.20	1.02	1.05
September.....	1.15	1.20	1.06	1.01	1.32	1.03	1.09
October.....	1.29	1.30	1.05	1.04	1.27	1.04	1.21
November.....	1.30	1.29	1.05	1.09	1.23	1.09	1.30
December.....	1.32	1.15	1.04	1.09	1.22	1.09	1.29

These figures have been compiled as nearly as the records permit in the same way as C. E. Leasher's average spot price of bituminous coal, first published in the U. S. Geological Survey's "Prices of Coal and Coke, 1913-1918," and since carried forward in *Coal Age*. They represent average of trade journal quotations for twelve coals representing the great bulk of the production, weighted first with respect to the proportions each of slack, prepared, and run-of-mine normally shipped, and second with respect to the tonnage of each normally produced. Data subject to revision.

1908 and the opening months of 1909, to recover in the autumn of that year with the revival of business. Much the same change in spot price accompanied the financial depression which began in the closing months of 1913 and continued through 1914 and the first half of 1915. But the changes accompanying these depressions amounted to only a few cents a ton between high and low changes that seem insignificant alongside of the contrast between the boom of 1920 and the slump of 1921.

Nor were car shortages wanting in those days, though it is clear that they were less frequent and less acute than now. In the business boom of late 1906 and 1907 occurred a rather notable congestion of the railroads, which caused much comment at the time. The spot price did

increase, as will be seen from the curve, but the increase, which reached a maximum in the early autumn of 1907, did not exceed 20c. a ton, an amount that would hardly be noticed in such a car shortage as occurred in 1917 or 1920.

Strikes occurred in the pre-war period, and they left their mark on the spot price. Suspension, or the threat of a suspension, caused a peak in the price in the early part of the "even" years 1906, 1910 and 1912. Here again the increase in price looks negligible alongside the increase, let us say, of 1922. Yet some of these pre-war suspensions were formidable demonstrations of the strength of the union. Thus in 1906, 44 per cent of the bituminous miners were out on strike. The total number of man days lost was 13,000,000, and in some districts the men were out for three months.

Again in 1910, the mines in Illinois and the Southwest Interstate region were closed practically five months, yet the increase in average spot price was only 19c. a ton over the year preceding. The sharpest little peak of the pre-war period occurred in early 1912, when the usual threat of a suspension of bituminous mining was reinforced by a stoppage in the anthracite region and by a sudden demand at tidewater, associated with a strike of the British miners. Even this combination of causes produced an increase in the average price for the country of but 60c. a ton over the year preceding, an increase which disappeared within two months.

Why was it, it may be asked, that the same kinds of causes which have produced the violent explosions in prices since the war—failures of labor supply, of transportation, or of both—produced such comparatively slight effects before the war? The answer is: (1) That strikes closed a smaller percentage of the total capacity of the country than now; and (2) that the reserve power of the railroads to make up for a shortage of coal when it arose was greater then than now. Whereas a general strike order in 1919 could

and did close 72 per cent of the capacity of the bituminous mines, a general strike in 1913 would have closed but 59 per cent of the capacity. Moreover, in the pre-war suspensions, it seldom happened that the entire membership of the union was called out. Usually some of the organized districts outside the Central Competitive Field stayed at work. With the supplies of non-union coal relatively greater than now, and with the railroads able to make up more speedily a deficit in coal supply when the strike was over, the increase in price attending these general suspensions was singularly small.

The data used in plotting diagram 1 for the period 1913 to 1923, are C. E. Leshner's "Average Spot Price on Fourteen Coals," weighted first with respect to the proportions each of slack, prepared and run-of-mine normally shipped, and second, with respect to the tonnage of each coal normally produced. The figures for 1906 to 1912 here shown have been assembled as near as possible in the same way. Quotations from the *Black Diamond*, the *Coal Trade Journal* and other sources have been pieced together and averaged with the same weights used by Mr. Leshner for the later years.

For twelve of the fourteen coals in the *Coal Age* Index it was possible to obtain quotations back to

1906 from one source or another. For two of the coals used by Mr. Leshner, the present writers could find no quotations; these two are eastern and western Kentucky. An attempt was made to procure records of spot prices actually received by large producing companies that were in business throughout this period, but no company was found that could make accurate separation of its spot and contract sales realizations for the period in question. The quotations become less and less satisfactory as the reader goes back into the earlier trade journals, and no journal seems to have made it a regular practice to report prices until about 1905. Naturally the accuracy of quotations for a given market varied with the care and skill of the correspondent in that market, and not all the quotations appeared trustworthy.

The coals selected for the group of twelve were the ones which appeared to be most accurately quoted, yet even here there apparently are discrepancies revealed by comparison of the quotations for one coal with others, and a considerable number of omissions. Where necessary interpolation was made in order to complete the string of quotations. Because of these possibilities of error, the figures are subject to revision, but it is not likely that they will be seriously changed.

The curve for the country as a whole, is, of course, a composite of local conditions that may vary widely. To throw light on these local differences we have charted typical coals from the Middle West, the district shipping to the Lakes, and the districts serving tidewater. These diagrams (2, 3 and 4) are drawn to a larger scale in order to bring out more clearly the fluctuations in price, and they show what was happening to spot prices from 1906 up to the latter half of 1916, when the war boom sent prices soaring upward beyond the limits of the scale here used. The diagrams are arranged one above the other, so that changes for one group of coals can be compared with those for another during the same period.

The curves represent weighted averages of the quotations for run-of-mine, prepared sizes and screenings, the weight used being the relative proportions of these sizes shipped in 1917.

The two Midwestern coals—Carterville and Franklin and Clinton—both quoted in the Chicago market, are dominated by the biennial suspension. They reached their highest point in 1910, when Clinton was quoted in one month at something over \$2 a ton. The suspension of 1910 centered in the Mississippi valley, and the Eastern fields—Ohio and Pennsylvania—resumed opera-

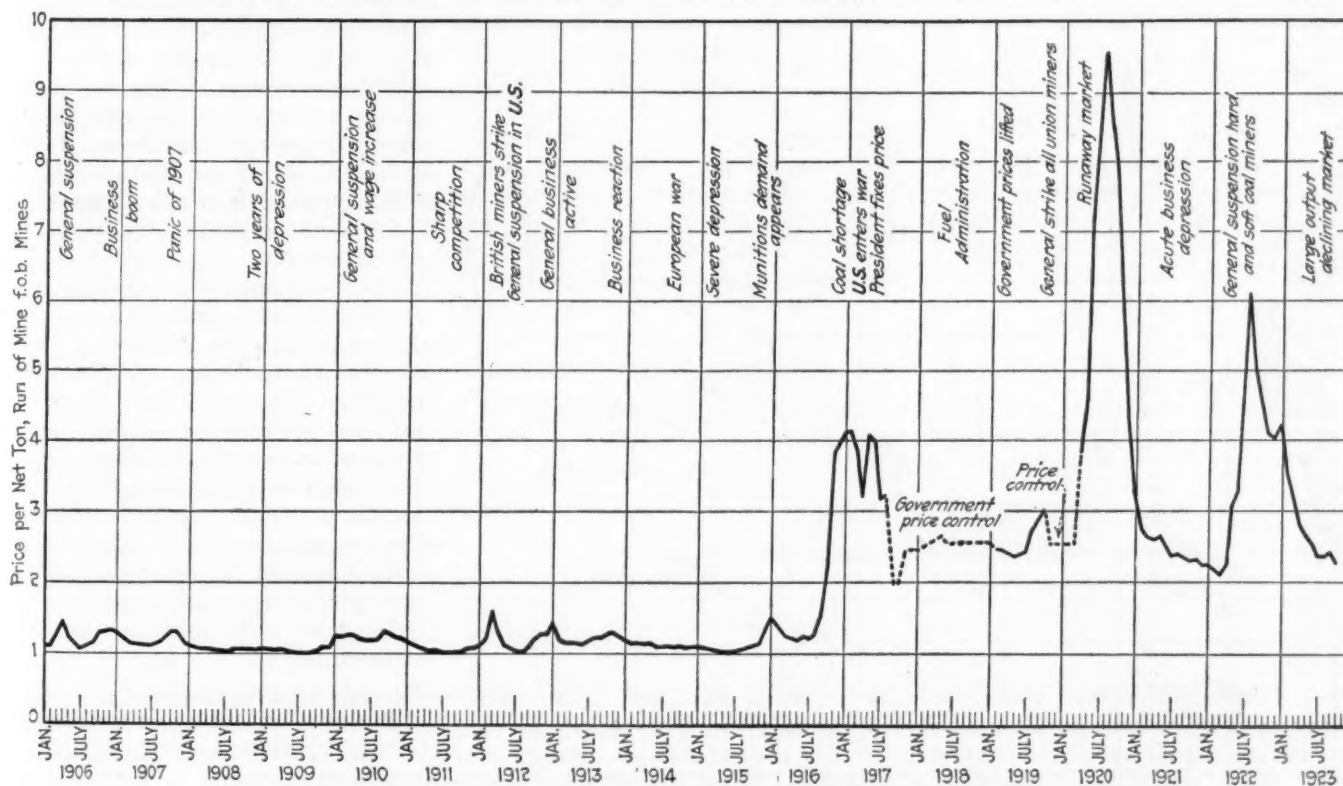


Diagram 1—Monthly Average Spot Prices of Bituminous Coal, F.o.b. Mines

The course of coal prices shown in this diagram is an epitome of coal for 18 years.

tions fairly early. Therefore, while these high prices were recorded for Indiana and Illinois coals, shippers from the Hocking and Kanawha fields reported a relatively small advance in price. Even quotations for

smokeless coal on the Chicago market did not rise any higher than \$1.31 f.o.b. mine for run-of-mine.

In fact the Hocking and Kanawha prices are the steadiest of those showing great disturbance only in

1906 and 1907—the first year because of the suspension which closed union mines in the East, the second year, apparently because of the traffic jam connected with the boom times of that period.

Diagram 4 represents two smokeless coals. The quotations for Pocahontas and New River up to 1912 inclusive represent prices in the Chicago market. Thereafter they represent the price in the Boston market. The quotations for Somerset are partly for the New York market and partly for Boston. The fact that the Pocahontas quotations represent prices for inland delivery and the Somerset quotations prices for tidewater delivery, explains in part the discordances between the two curves in the years 1906 to 1912.

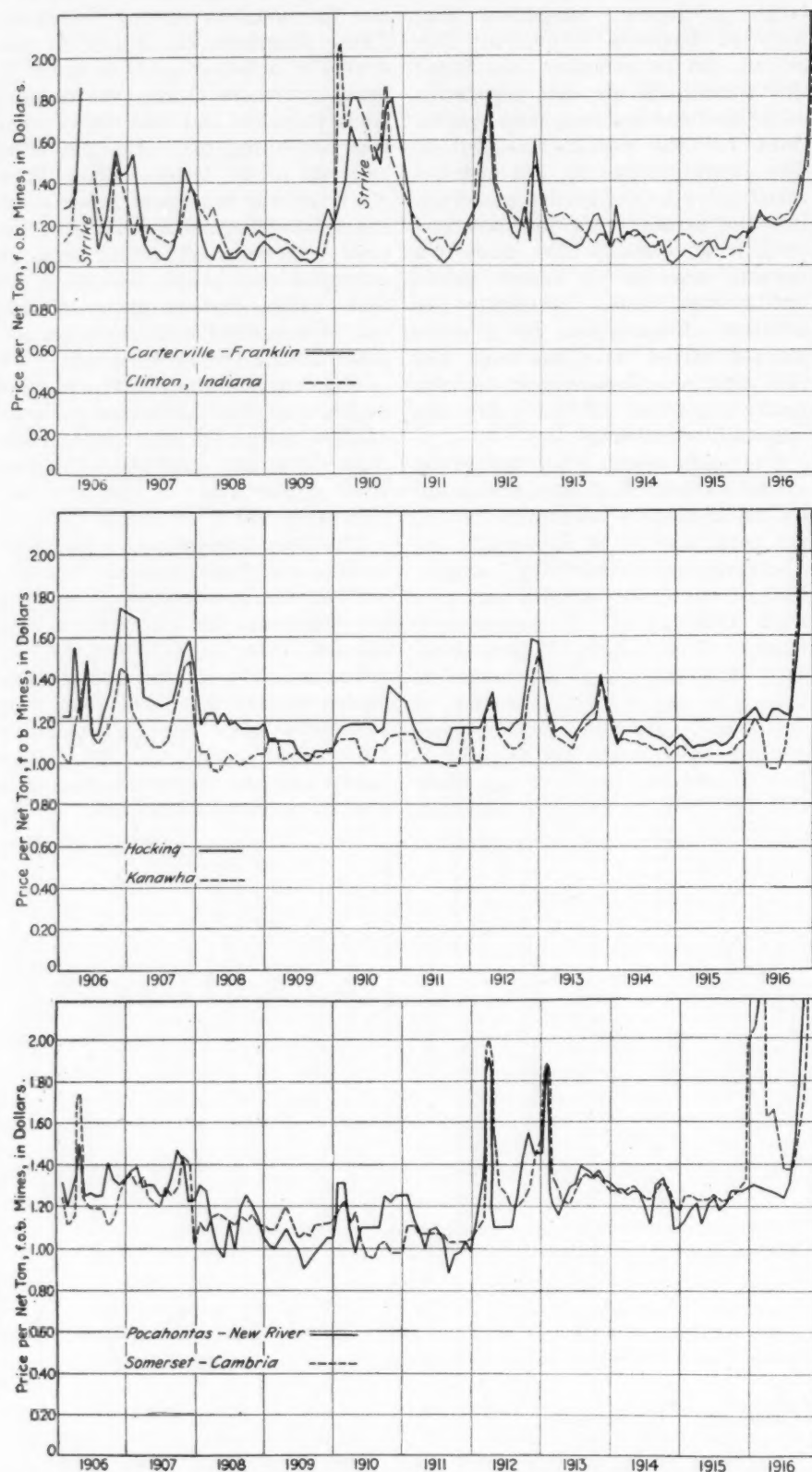
The price of Pocahontas should be the most sensitive of all the coals, because the demand for it is so diversified, and because it participates in both the tidewater and the interior trade. Careful study of the Pocahontas curve does show that it responds more quickly than any of the others to changes in the general tone of business and that it registers both the periodic strikes of the interior and the changes of the tidewater market. The sharpest peak in the smokeless prices, it will be noticed, occurs in March, 1912. It is a composite of three disturbing factors, (1) the regular biennial suspension anticipated for the bituminous fields; (2) the stoppage of anthracite mining at the expiration of the anthracite wage agreement; and (3) and perhaps most important, a strike of the British miners, which created a sudden vacuum in supplies of bunker coal at our North Atlantic ports.

These prices are of course spot, or open market, quotations and they do not reflect the amount of profit received by the operator. They are weighted down by the volume of contract business which continues to move as usual at customary prices. That the ups and downs of the spot market had relatively little effect on the average receipts of the substantial companies is shown by the figures of average sales realization on both spot and contract business which follow:

Average Sales Realization on all Bituminous Coal Produced, 1906-1922

(As reported to the U. S. Geological Survey)

1906.....	\$1.11	1912....	\$1.15	1918....	\$2.58
1907.....	1.14	1913....	1.18	1919....	2.49
1908.....	1.12	1914....	1.17	1920....	3.75
1909.....	1.07	1915....	1.13	1921....	2.89
1910.....	1.12	1916....	1.32	1922....	3.02
1911.....	1.11	1917....	2.26		



Diagrams 2, 3, 4—Pre-War Variations in the Spot Prices of Bituminous Coal

The six coals for which price fluctuations for eleven pre-war years are shown in these diagrams are representative of the three largest soft-coal areas—the Middle West, the Eastern high-volatile and Eastern low-volatile fields. By comparing one with another, it will be noticed how little the Illinois strike of 1910 affected the Eastern coals, but how the boom in smokeless coal prices in 1912, following the British strike of that year, was reflected in the West. At the end of 1916 the prices of all these coals hit the sky and went beyond the scales on these diagrams.

Coal Freight-Rate Decisions Made and Pending Point Path to Normality

In Disposing of Complaints This Year Interstate Commerce Commission Probably Will Pass on Rate Structure of Most of the Country—Relationships Between Origin Districts Most at Issue

BY WAYNE P. ELLIS

IF THE history of soft-coal production in 1923 spells "nothing else but," it has forcefully confirmed the oft-repeated statement of the operator that, given transportation service of 100 per cent at the mines, the normal competitive forces of supply and demand will set at rest most of the ills of the coal industry. But, without straying further into conjecture, many facts indicate that that elusive bird called "normal" has had the adaged sprinkling of salt on its tail and should soon be in captivity. One of the indications is the large number of decisions rendered and complaints pending before the Interstate Commerce Commission involving freight rates on coal. When these complaints are finally disposed of, as may be expected by the end of 1924, that body will have passed upon the present coal-rate structure of the country, with the possible exception of the Far West and the Southeast.

The complaints now pending have to do for the most part with relationships between origin districts. They are an indicator of normality because they show that the coal-shipping and consuming public, which took without much open discussion all that was put on its head in the way of increased freight rates during and since the war, is now relieving itself of pentup grievances.

Freight rates on coal are now about 75 per cent above the levels on Jan. 1, 1917. Prior to that date there had been little change for fifteen years. In the pre-war period the soft-coal business of the country developed under a general freight-rate structure of established fixed differentials between grouped points of origin to grouped points of destination. By reason of the method by which the general advances in rates were applied to coal, the rates from these coal fields in closer proximity to the consuming markets were advanced a larger percentage than the more distant fields. The question before the Interstate Commerce Commission is broadly

whether or not the larger percentage advances from the short-haul fields should be reduced or the smaller percentage advances from the long-haul fields should be increased.

Many arguments have been advanced by the contending parties on both sides. These contentions have been set forth so well in the decision of the Interstate Commerce Commission in what is known as the Ohio-Michigan Coal Cases (reported in 80 I. C. C. Reports, page 663) and the decision is so important as bearing upon the thought of the commission in disposing of similar complaints now before it, that the following brief résumé of that portion of the decision bearing upon the issue of relationship is offered.

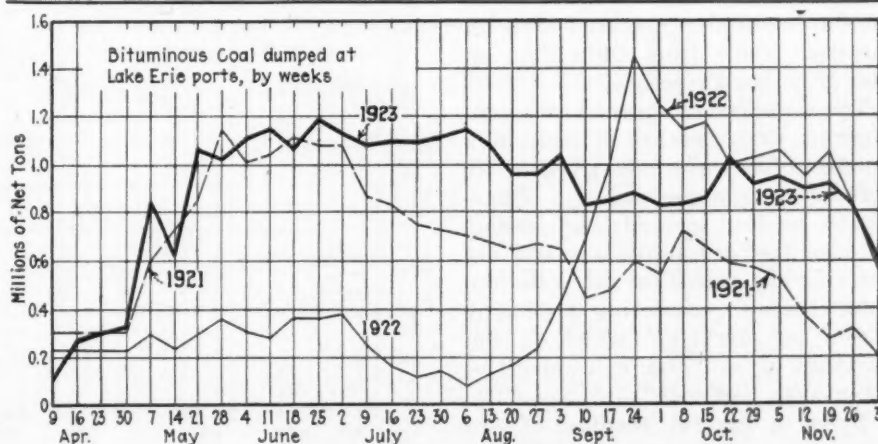
On that phase the commission was not called upon to decide the reasonableness of the rates, as there was no such allegation in the complaint. It was necessary, however, for it to determine, under the express terms of the Transportation Act of 1920, the effect of any change in the situation upon carrier revenues, and decide upon a basis that would not impair railroad earnings. As the decision states, "Stripped of surplusage, the naked issue presented by the pleadings and evidence is this: Have the increases made since the original decision disturbed the relationship under the differential there prescribed so as to bring about undue prejudice to complainant and

undue preference of the Crescent Coal fields?"

The original decision referred to was in the case known as Bituminous Coal to C. F. A. Territory (I. & S. Docket 774, reported in 46 I. C. C. Reports, page 66), in which the differential from the Pittsburgh, Connellsville Fairmont, southern West Virginia and eastern Kentucky high-volatile coal fields—that is, the Inner Crescent group—over Ohio districts to affected territory was ordered to be increased from 25c. per ton to 40c. per ton. Affected territory may be generally described as comprising northwestern Ohio, northern Indiana (excluding the Chicago district) and the Lower Peninsula of Michigan. The same territory is covered in the order of the commission in the Ohio-Michigan cases.

The commission's decision summed up the evidence of the complainant (the Southern Ohio Coal Exchange) in two propositions, as follows: "(a) That the differentials here in issue were fixed when the rates were substantially lower than at present, that the relationship has been destroyed by the various increases since made, and that under existing rates greater differentials in favor of southern Ohio should be established to restore the proper relationship; and (b) that southern Ohio is entitled to greater differential because of its proximity to consuming points in central territory."

Before taking up these proposi-



AVERAGE OF COAL RATES TO THIRTEEN POINTS IN THE CENTRAL MARKETS,
IN CENTS PER TON

Origin Groups	1917 Rates Prior to I.&S. 774 (1)	Rates after Decision in I.&S. 774 (a) (2)	June, 1922 Rates Prior to 10 Per Cent Reduction (4)	Rates Proposed by Complainant in Ohio-Mich. Case (5)	July 1, 1922 Rates Resulting from 10 Per Cent Reduction (6)	Rates Proposed by Complainant in Ohio-Mich. Case Less 10 Per Cent Reduction (7)	Sept. 27, 1923 Rates Resulting from Order from Ohio-Mich. Case (8)
Ohio	143	143	292	263	259	237	249
Inner Crescent	168	183	332	337	299	303	299
Outer Crescent	187	202	351	372	318	335	323

(a) These rates did not actually become effective as the 15c. per ton advance authorized on all coal rates by the Interstate Commerce Commission was added at the same time, making the actual rates 158, 198 and 217 respectively.

tions, and in order to portray the situation more effectively, the accompanying table is given containing the average rates in effect to thirteen representative points in affected territory from the three general origin groups.

Under proposition (a), the complainant requested the Interstate Commerce Commission to establish the rates shown in column 5 in the table. These proposed rates were arrived at by using the rates approved in docket I. & S. 774 from Ohio (the average is shown in column 3) as a basis; adding to such base 15c. under Ex Parte 57 (The 15 Per Cent Case), 30c. under General Order 28, and 40 per cent under Ex Parte 74 (Increased Rates, 1920). The method produces the average rate of 263 from Ohio, as shown in column 5 in the table, which is approximately 184 per cent of the base. The proposed rates from the Inner and Outer Crescent were then arrived at by increasing the rates shown in column 3 by 84 per cent, the same as the Ohio rate. Column 7 shows what these proposed average rates would have been after the 10 per cent general reduction in rates on July 1, 1922.

The principal reason given by the complainant for approval of these proposed rates was the fact that increased operating costs had brought about the general increases in rates since 1917, and contended that the manner in which the increases were applied "cast a greater portion of the burden of the increased costs on the coal traffic from Ohio than on that from the Crescents."

The commission rejected this contention; first, because it had, in a number of cases previously decided, refused to change coal-rate differentials on that ground; and second, because fixed differentials on coal are the rule and "stabilize rate relationships between competing producing points or markets," which is important in a "highly competitive commodity like coal."

From a careful reading of the

decision, it must be concluded that the commission arrived at the opinion that the differentials should be widened because of proposition (b). The decision states that "upon this record we are of the opinion that the southern Ohio districts are not now enjoying the full advantage of their location with respect to the markets in affected territory." Distance (plus perhaps other handicaps of lesser importance) appears to have been the principal factor considered by the commission in arriving at the conclusion to increase the differential.

No finding was made as to rates to non-affected territory. The opinion states that the carriers would "be expected to make such readjustment of their rates to that territory as may be necessary to bring them into harmony with the readjustment of rates" required to affected territory. As a result the carriers have made readjustments to part of the non-affected territory.

Two significant factors should be noted in connection with this decision: (1) that the commission reiterates its belief in the justice of the group principle of making coal rates; (2) that while all eleven commissioners agreed that the differential should be increased, five of them believed it should have been made larger.

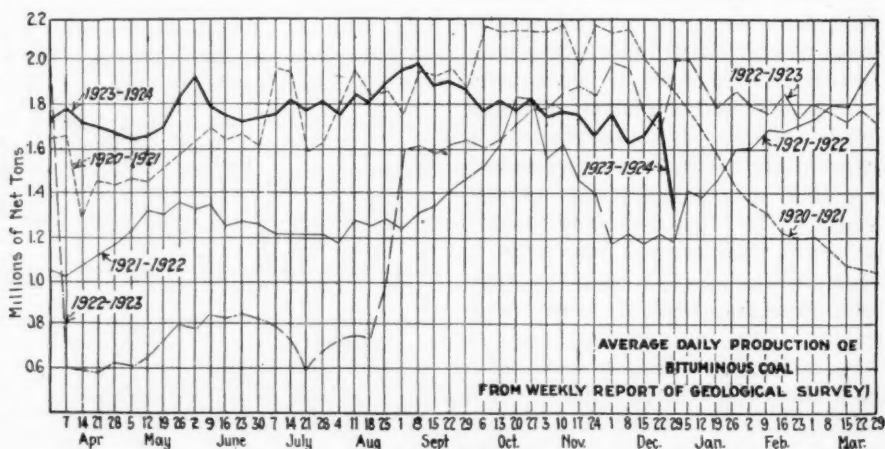
Whatever significance may be attached to the decision in the Ohio-

Michigan cases affecting the differentials between the Ohio and Crescent fields as indicating what action the commission may take in similar cases now pending before it, it must be borne in mind that each case will be decided on its merit on the record that is made in each case and in accordance with the particular circumstances and conditions which surround the movement of coal from the districts involved. The long-haul districts took heart after the decision of the commission in the Illinois coal cases, 1920, wherein they ordered the restoration of the 70c. differential between northern and southern Illinois. In the Ohio-Michigan cases it has made a different decision, but in each case it must be concluded that the commission arrived at its opinion from the facts as made of record.

It cannot, therefore, be prophesied what action will be taken by the commission in particular cases involving the same factors as was presented to it in the Ohio-Michigan case on the question of relationship or differentials between the fields.

Empties Thirty-five Cars At One Time

A rotary car dump just installed at the Colonial No. 3 Mine, of the H. C. Frick Coke Co., is 400 ft. long and dumps a trip of thirty-five cars at one time. It is more than twice as large as any other equipment of this type heretofore built. It is similar in construction to the 26-car dump built for the Snowden Coke Co., at Brownsville, Pa., but that is only 120 ft. long. The net load of coal discharged every time the car dumper turns over will be from 130 to 150 tons. The weight of the empty cars will be approximately 50 per cent of this load, or 60 tons. The car dump itself weighs about 150 tons, making a total weight of 360 tons. The constructors are the Car-Dumper & Equipment Co.



MARKET REVIEWS

Markets and Production in 1923 and Forecasts by Our Correspondents in Leading Coal Fields—Diagrams and Tables of Spot Prices of Coal and Operating Records of Producing Districts

"Battle of the Century" Is Fought in Northwest With Big Flow of Coal

Lake Traffic Gets About 32,000,000 Tons During 1923, Which Exceeds Boom Year, 1918, by Nearly 3,000,000 Tons—Throat-Cutting Competition Runs Through Season

THE battle of the century" was fought all over the Northwest during 1923. Dock armies and rail armies marched and countermarched back and forth and up and down Minnesota, Wisconsin, Iowa and the Dakotas, fighting for the complacent coal trade of those states. In the dock forces there were armies within armies. In the rail forces there were all sorts of separate and detached maneuvers. And outside of the regular forces of both there were guerilla actions galore.

As a result of the whole campaign the Northwest got cheaper coal than it has had for years. It got all it wanted and a good deal more. The fighting for the privilege of supplying this coal was so bitter that coal traders' margins narrowed down to little or nothing. At the end of the year the various armies were almost in a state of collapse from forced fighting on empty stomachs while the consumers of the Northwest were literally stuffed with good coal and the docks were loaded to the rims.

Never before had there been a Lake movement of 32,000,000 tons. The biggest previous season of Lake coal shipping was 1918, with 29,388,000 tons. The month of November alone was the greatest November bar one. In November, 1922, the wild rush to get post-strike coal to a famishing Northwest took a total of 4,008,000 tons off the Lake Erie dumping points and sent it up-Lake. In 1921, which was not the worst year in history, the month's total was barely 1,500,000 tons. But in November, 1923, the total reached 3,735,000 tons!

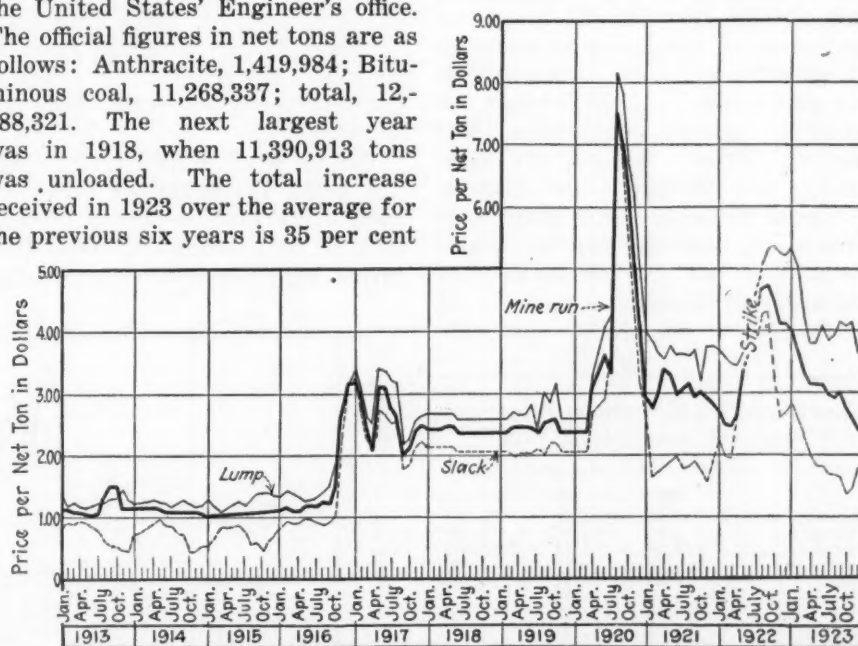
A few more statistics as of Dec. 1, 1923, show that the season up to that date was about 72 per cent ahead of 1922 and approximately 44 per cent ahead of the season of 1921. Navigation, which had opened May 1, closed officially on Dec. 12, when insurance rates went off, but a good deal of coal reached the north docks in those twelve days, and in the mild weather which followed in the next few days a few more dribbles of fuel tied up alongside, waiting for a chance to unload.

The heaviest receipts of coal yet recorded at the Head of the Lakes in any one year were unloaded at Duluth in 1923, according to the final official figures of receipts given out by the United States' Engineer's office. The official figures in net tons are as follows: Anthracite, 1,419,984; Bituminous coal, 11,268,337; total, 12,688,321. The next largest year was in 1918, when 11,390,913 tons was unloaded. The total increase received in 1923 over the average for the previous six years is 35 per cent

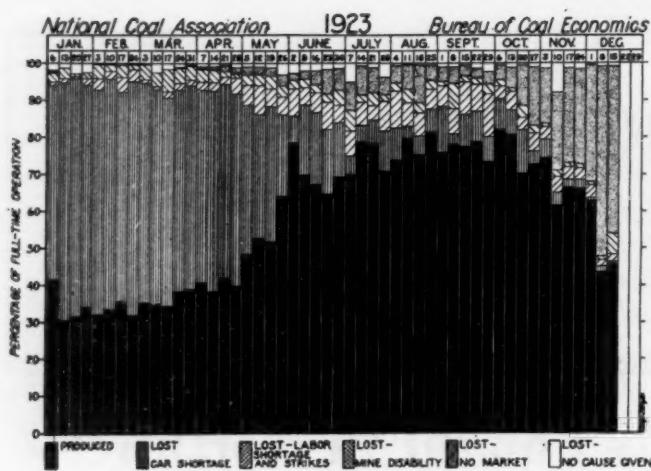
or 3,316,749 tons. The season extended from May 5 to Dec. 10. The total number of cargoes was 1,441. Largest day's receipts was on May 5 when 28 cargoes aggregating 266,686 tons, were received.

Receipts by vessel at Milwaukee did not exceed those of 1918, as did the receipts of most lake ports. However, plenty of coal reached the docks of that city. Vessels brought 3,233,122 tons, the largest volume since 1918, when 3,446,000 tons arrived. Most other upper Lake docks had received more than in any other year, by the time vessel movement came to an end.

But the battle for markets did not end then. There could be no ar-

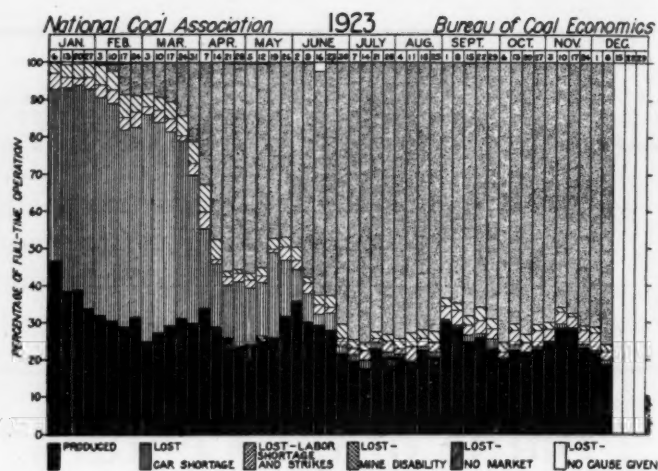


SPOT PRICES F.O.B. MINES ON THE CHICAGO MARKET OF COAL FROM SOUTHERN ILLINOIS



Northern and Central Ohio Districts

PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES



Southern Ohio District

mistice in such a war. Blood had been shed, so to speak, in great volume all season, rules of fighting had early been scrapped and there was no insurance to go off Dec. 12 for salesmen, or any other hindrance to the tooth-and-nail struggle to sell. Movement off the docks was considerably reduced during December, as was movement into the Northwest by rail, indicating that the country was sated for the time being, but coal in abundance was easily at hand ready for delivery.

The facts are, the dock operators, figuring on a countrywide strike in the union fields next April, are stocked with cheap coal and ready to profit by it. It is estimated there will be 6,000,000 tons of Eastern bituminous on the docks April 1. This carry-over, the biggest ever, much of it sewed up at the ridiculously low prices of the late summer and autumn, may enable the docks to recoup all the losses so many of them suffered in the price-cutting campaign they ran all through the autumn against themselves and against Illinois, Indiana and Kentucky rail shippers. At Duluth-Superior alone on Dec. 1 there were free stocks totaling 5,875,000 tons of bituminous coal. Other docks were equally well stocked.

Just how the docks and rails

divided the Northwestern market during the year is difficult to say. The battle line wavered back and forth often and widely between the rail coal assaulting from the south and the Lake coal counter-attacking from the north and east, with a flank turning movement executed every now and then by Dakota lignite from the west. That particular lignite doubled in production over average previous years, so the total of it in the market was approximately 3,000,000 tons.

Illinois and Indiana shippers vary in their estimates of the volume of coal from those states that went into the Northwestern trade, but the consensus is that the total is about the same as in recent years. The realization, however, is much less. It has been so much less, in fact, that a few of the Midwestern producers most fortunately situated as to outlet into sections other than the Northwest largely withdrew from the territory, centering their attention upon regions where competition was less ruinous.

The price of Illinois and Indiana coal going north ranged far downward from even so low a level as that of 1921, when industrial stagnation kept the country's total coal

Spot Prices, F.o.b. Mines, of Bituminous Coal, Central Illinois, 1923

CHICAGO (ILL.) MARKET

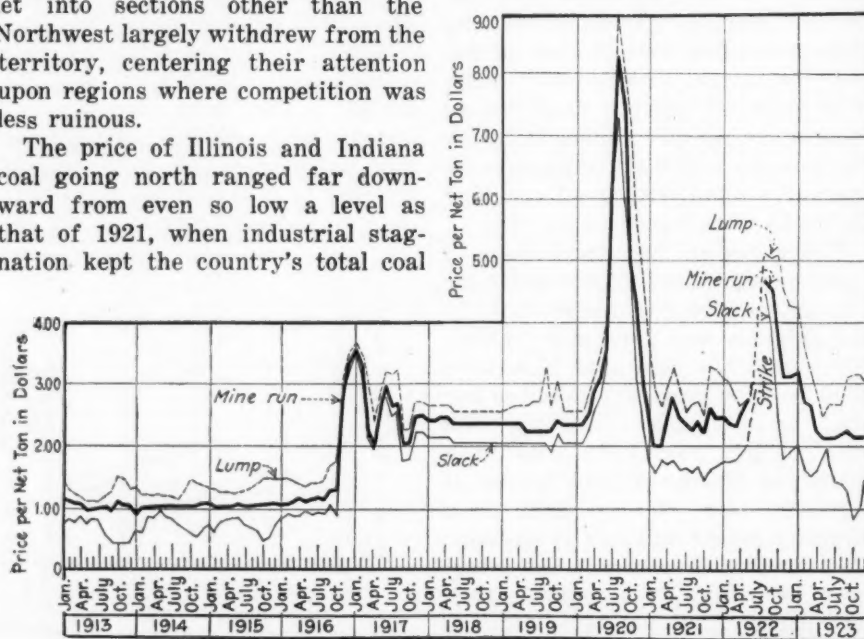
	Lump	Mine-Run	Screenings
January.....	\$4.23	\$3.18	\$2.01
February.....	3.54	2.69	1.63
March.....	3.19	2.63	1.50
April.....	2.82	2.23	1.60
May.....	2.47	2.13	1.81
June.....	2.63	2.13	1.69
July.....	2.63	2.13	1.43
August.....	2.63	2.16	1.39
September.....	3.10	2.23	1.24
October.....	3.13	2.13	.89
November.....	3.13	2.13	1.00
December.....	3.02	2.13	1.45

production low and when the dock interests, in order to keep their Pennsylvania, West Virginia and Ohio mines running during the summer, sent a normal amount of fuel up the Lakes. A comparison of actual prices on coal shipped to the Northwest for the two years from a typical southern Illinois mine shows 1923 decreases varying from 27c. to 60c. and averaging 43c. The 1921 prices

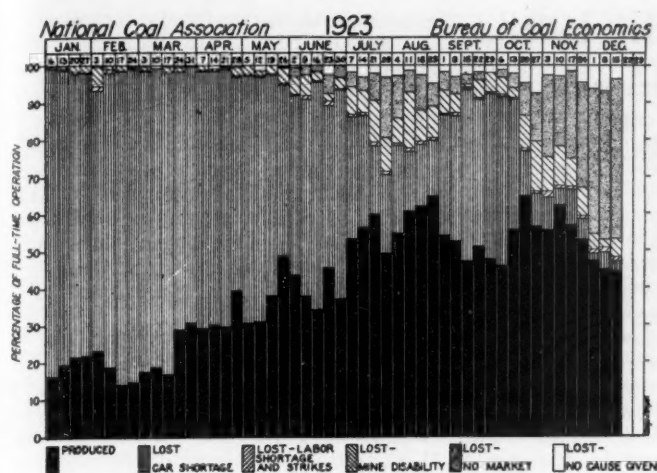
Spot Prices, F.o.b. Mines, of Bituminous Coal, Southern Illinois, 1923

CHICAGO (ILL.) MARKET

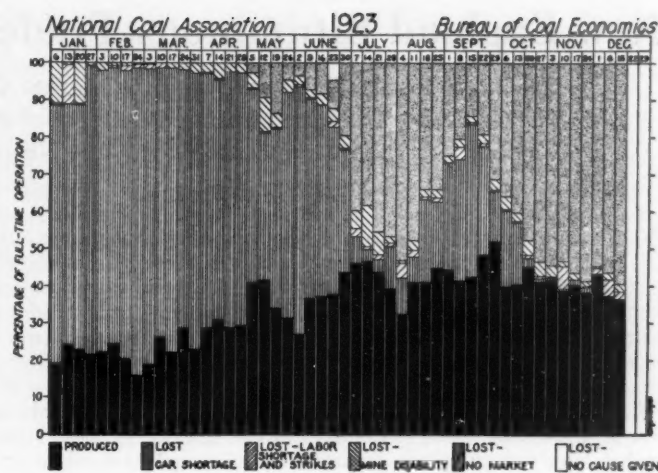
	Lump	Mine-Run	Screenings
January.....	\$5.38	\$3.98	\$2.81
February.....	5.01	3.64	2.54
March.....	4.24	3.32	2.31
April.....	3.78	3.13	1.99
May.....	3.80	3.13	1.82
June.....	4.08	3.13	1.81
July.....	3.83	2.98	1.68
August.....	3.93	2.91	1.67
September.....	4.15	3.00	1.63
October.....	4.08	2.73	1.36
November.....	4.13	2.54	1.45
December.....	3.65	2.38	1.78



SPOT PRICES F.O.B. MINES ON THE CHICAGO MARKET OF BITUMINOUS COAL FROM CENTRAL ILLINOIS



Hazard Field, Kentucky



Harlan Field, Kentucky

PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES

on this coal—including, from spring to winter, all sizes from screenings to 6-in. lump—ran from \$2.32 to \$2.75 and in 1921 from \$2.70 to \$3.05. Of course, there were wide variations from this, in many special instances, but the record of that one mine is typical of the average experience of the whole southern Illinois field.

Early in the summer, as the navigation season opened, strong efforts were made to maintain prices of Eastern coal going into the Lake trade, but the net result was failure. A good deal of coal shipped on open price contracts was the first development. Then general undercutting started, resulting in splits among dock interests before the trade generally resigned itself to price levels at which coal-at-cost from Illinois, taking a \$3.47 rate into the Northwest, could be met.

Docks at no time were moving coal into the interior as speedily as they had hoped, but a good indication of how the season wound up is shown by the figures for shipment off the Head-of-the-Lakes docks for November. In that month 23,699 cars were loaded off as compared with 23,436 the month before and with 20,638 in November of 1922, when the grand post-strike rush was on.

As the year finished, the Northwest was showing no great coal hunger. Soft coal moved on a price basis only and even anthracite was a trifle sluggish, for retailers had taken as much of it as was customary, and December was not severe. Everyone in the region looked forward to winter months in which they could obtain all the coal they wanted, whenever they wanted it, and worried not at all about April 1 and a strike.

For once the Northwest had little cause to worry about its anthracite supply. While it did not get as much

hard coal as in some previous years it received a sufficient supply from first to last in spite of the brief tie-up due to the miners' strike which Mr. Pinchot so obligingly settled by increasing the price of coal. This increase is the only thing about anthracite which seriously harassed the Northwest. Hard-coal shipments arrived with fair regularity during the bulk of the season except September, causing no flurry whatever except a small and largely artificial one near the end of the year, when it became noised abroad through the towns of Duluth and Superior that the hinterland had sewed up all the hard coal there was while the lake-edge communities snoozed.

The demand for stove and egg sizes got too heavy for the docks to handle during November, and there was some parcelling out of coal in

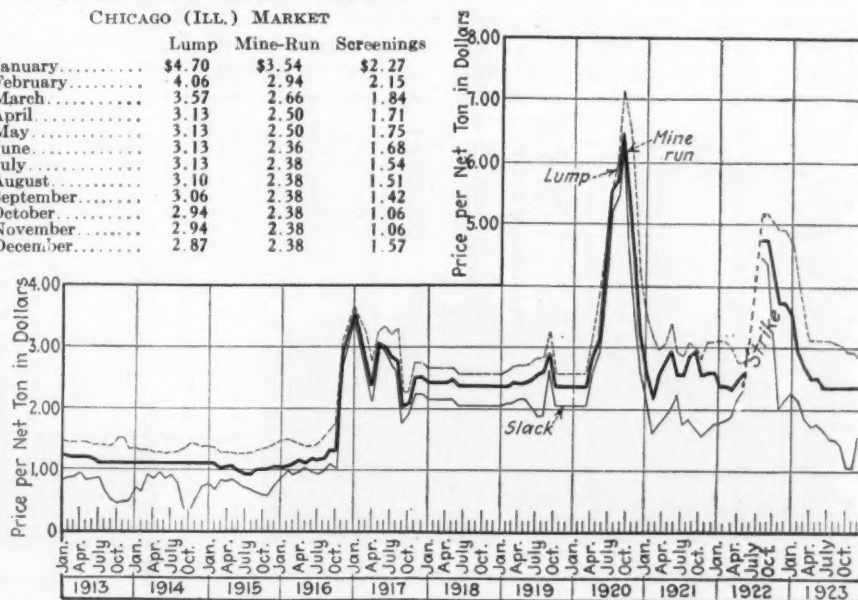
small lots, and insistence upon the buyer taking a certain proportion of chestnut and pea sizes, all of which had a tendency to fret the trade a little, but at no time was anybody frantically fighting for fuel. The increased price did some good for the briquet manufacturers and aided the Pocahontas business materially, however.

Duluth's total receipts of hard coal for the year were approximately 1,500,000 tons while another 300,000 tons went to other Lake Superior ports. Milwaukee received 971,824 tons of hard coal at about its regular rate all season by vessel, except in the low month of September, when only 32,000 tons arrived, and, in addition, got approximately 150,000 tons by car ferry. Thus gently did a year of little labor trouble and practically no transportation disability treat the Northwest in its regular business of getting anthracite.

Spot Prices, F.o.b. Mines, of Bituminous Coal, Indiana 4th and 5th Vein, 1923

CHICAGO (ILL.) MARKET

	Lump	Mine-Run	Screenings
January.....	\$4.70	\$3.54	\$2.27
February.....	4.06	2.94	2.15
March.....	3.57	2.66	1.84
April.....	3.13	2.50	1.71
May.....	3.13	2.50	1.75
June.....	3.13	2.36	1.68
July.....	3.13	2.38	1.54
August.....	3.10	2.38	1.51
September.....	3.06	2.38	1.42
October.....	2.94	2.38	1.06
November.....	2.94	2.38	1.06
December.....	2.87	2.38	1.57



SPOT PRICES F.O.B. MINES ON CHICAGO MARKET OF BITUMINOUS COAL FROM FOURTH AND FIFTH VEINS, INDIANA

New England Bituminous Trade in 1923

Hampton Roads Shippers Dominate Market Greater Part of Year—Too Much Coal and Collapse of Prices—Forecast for 1924 Complicated by Wage Negotiation

By G. G. WOLKINS

BUYING power collapsed so early in 1923 that for the bituminous-coal industry it proved a highly unsatisfactory year. Renewal of the wage agreement prior to April checked any tendency toward lower production cost in the union districts, and except for a few weeks in the spring the outlet in New England for central Pennsylvania grades was pretty much restricted to the narrow strip west of the Connecticut River which alone can be regarded as undisputed all-rail territory.

The railroad-rate problem remains unsolved and it has again been demonstrated that in the absence of swollen demand off-shore or impaired railroad service the Pocahontas and New River districts are adequate sources of supply for the greater part of this north-eastern area—in fact insistent upon the lion's share. Through non-union policy they enjoy enough lower cost than sections accessible all-rail that in anything short of a buoyant market they dominate the seaboard trade. With rail rates as they are the smokeless shippers curry practically the whole of New England and there are few steam-using communities that elude their fine-tooth comb. Oil and hydro-electric power have made such inroads that the Hampton Roads agencies are in position to flood this finicky market, although partly for the same reason the total requirements are far less than during the war.

For the year recently ended, reduced consumption was perhaps the leading feature. Cotton manufacturing was particularly hard hit, and in many industries the inclination in January to store coal against possible emergency soon gave way to an entire lack of buying interest. Reserves were ample, receipts of coal for the first six months were well up to the high marks of other

years, but from July to December industrial purchases of more than meagre tonnage were the exception.

The goods trade, shoes, metal working and paper were all under blight of varying proportions, and deliveries on bituminous-coal contracts were as a rule far behind the quotas engaged. A few keen buyers profited by the dalliance between factors who loaded their wharves to the danger point and those who warehoused their coal in demurrage-laden bottoms, for in the end the seller went under the knife. It was the inexorable law of supply and demand.

A year ago it was figured that imports of fuel oil during the preceeding twelve months at the Port of Boston had been the equivalent of 4,250,000 net tons of bituminous coal, or an increase over 1921 equal to 500,000 net tons. Because California oil has been rapidly supplanting Mexican output the customs data for 1923 are not so significant, but according to oil statisticians the enhanced displacement for the year now ended was easily another 500,000 net tons, or a possible total of 4,750,000.

It is conceded that where local oil reserves last year were large they are now relatively less, a circumstance that would make actual consumption of oil for 1923 swell the estimated gain. That oil has made havoc with the steam trade is beyond question, but in spite of the marvellous flow of this attractive fuel there are certain indications of abatement. Besides broad assertions that the use of oil as fuel is wasteful, that the current surplus will be held in check, that relative costs are certain in the long run to favor coal, we know of steam users who find themselves obliged to consider resuming the use of coal.

At today's prices the consumer who can feed his boilers one-third anthracite

screenings and two-thirds bituminous coal discovers that only the cost of his oil installation stands in the way of coal. California oil will cost more than oil from Mexico; there are delivery charges on oil that are on all fours with coal, and barring a protracted strike that would be general in the bituminous regions it may be that 1924 will witness more of a reaction toward coal than the trade now anticipates.

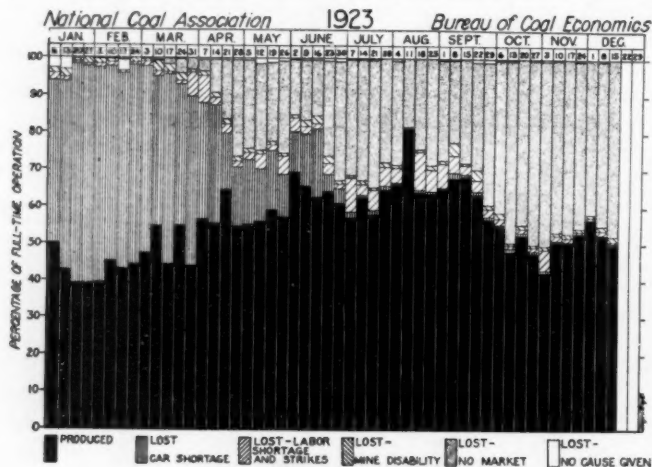
FOREIGN COAL IN EVIDENCE

British steam grades were in evidence early in the twelve-month period, but January and February receipts could not be sustained. Ocean freight rates continued on a low basis—\$1.25@ \$1.50, Cardiff to Atlantic ports—but the prostration of prices at Hampton Roads the second half-year effectually put an end to movement in this direction. In December, however, there were colliers chartered for French ports for Hampton Roads loading, certain of them having brought Welsh anthracite to Boston with generous proportions of slack to enrich the available supply of low-price bituminous!

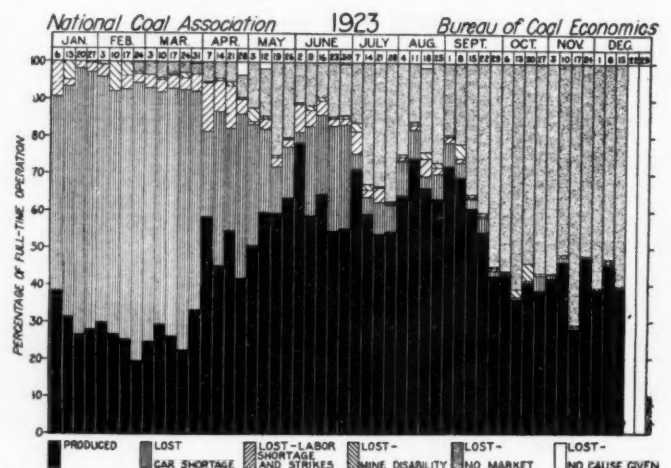
The unforeseen breakdown in prices of non-union bituminous coal early in the year discouraged further purchases of engine fuel from abroad, and even at the low range of ocean freights the West Virginia product at \$1.75 per net ton and less was too sharp competition for our English cousins. And it was from West Virginia that the New England roads took the greater portion of their supply during the period under review.

A committee of the Massachusetts Legislature named in the spring to examine into the coal industry made a rather more restrained pronouncement than is usual in political composition. It urged a review of railroad rates on bituminous coal as well as on anthracite, argued for the more extended use of bituminous in dwellings, and, refreshing for coal men to read, it lambasted coke producers for their "selfish policy."

Quality coals from the central Pennsylvania districts were on a \$6 per net ton mine level in January, but as the weather caught up with the short sup-



Central Pennsylvania
PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES



Somerset County, Pennsylvania
PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES

Spot Prices, F.o.b. Mines, of Bituminous Mine-Run Coal, Cambria, Clearfield and Somerset, Pa., 1923

BOSTON (MASS.) MARKET

	Cambria	Clearfield	Somerset
January.....	\$5.21	\$4.85	\$5.21
February.....	4.39	3.85	4.04
March.....	3.91	3.13	3.47
April.....	3.61	2.86	3.29
May.....	3.27	2.56	2.87
June.....	3.01	2.44	2.79
July.....	2.88	2.35	2.60
August.....	2.91	2.34	2.60
September.....	2.88	2.18	2.44
October.....	2.68	2.07	2.33
November.....	2.60	2.10	2.36
December.....	2.45	1.88	2.14

ply of anthracite there was a gradual lowering of prices until in April they were around \$4. Beginning in June quotations on all grades drooped for the rest of the year, and in New England the product of Pennsylvania almost ceased to figure.

All-rail deliveries were reasonably well maintained to the time when Southern coals eased off, but thereafter the proportion of commercial bituminous coal entering the Hudson River gateways was relatively light when compared with the volume of railroad fuel rolling on early commitments. When No. 1 Navy Standard Pocahontas and New River sold at \$5.18 on cars Boston with slack at 50c. less, and favored with a \$1.32 rate to large mill centres the high tariff all-rail would leave but \$1.39 per gross ton f.o.b. mines in Pennsylvania. He who runs may sense the reason for the much restricted buying of even the highest grade Cambrias during 1923.

SEASON LACKED BALANCE

There was a period in May, when the smokeless interests sought to establish \$7 as a take-or-leave basis at Norfolk, that the South Fork producers had vistas for a few days of comprehensive business, but it was for a few days only. Most of them were so flustered by what seemed an inviting prospect that they declined tonnage they sorely needed later on. A large movement probably would not have been the outcome in any case, for the buyer has ways of reaping the advantage of hindsight, but it was considerable while it lasted and was a godsend to the rail roads serving Philadelphia.

Aside from that short spasm, dumpings at the Delaware River terminals after April were confined chiefly to high volatiles both for locomotive supply and for illuminating purposes, and even of these the volume steadily diminished until low totals were reached toward the end of the year. The bulk line was from Hampton Roads and it is with Pocahontas and New River that the record of 1923 is mainly concerned.

At no time during the year was there anything approaching the contract-making activity that used to be so characteristic of the spring months. The Navy purchases of 400,000 tons or so in April ranged \$6.50@\$6.72 per gross ton f.o.b. vessel at Norfolk, but in New England there were but few comprehensive orders placed at a fixed price. The Navy bids disclosed a firm

purpose to maintain higher levels than during 1922, but faced with uncertainties in their own lines, buyers here could not see their way clear to respond.

By late March, therefore, contract business was at rather loose ends, and few of the agencies could do better than continue the previous season's understandings and make prices on a mine basis only for April, leaving later figures to be determined as the market developed. The price range on these arrangements at the outset was \$3.50@\$4 per net ton at the tippie (\$6.44@\$7 per gross ton f.o.b. Norfolk), the price varying according to the class of the buyer, but by June the mine basis had to be modified materially. As in 1922, a large proportion of the Hampton Roads coals received here was through regular channels that had become customary since the war.

In January the smokeless coals were in short supply. Car service was erratic, prepared sizes were in strong demand in the West, and in New England there was an improving market for inland delivery. At the Virginia terminals prices ranged \$7.50@\$8.80 for standard grades, a level that was raised to \$9 by the end of that month, with \$11 a typical quotation on cars, Boston, and bituminous retailing at as high a figure as \$15 per net ton. But by February our buyers began making their exit. It was estimated that something approaching 25 per cent of the steam coal received early in the year was shipped in anticipation of household needs, and it was quite clear that production was far beyond normal industrial requirements.

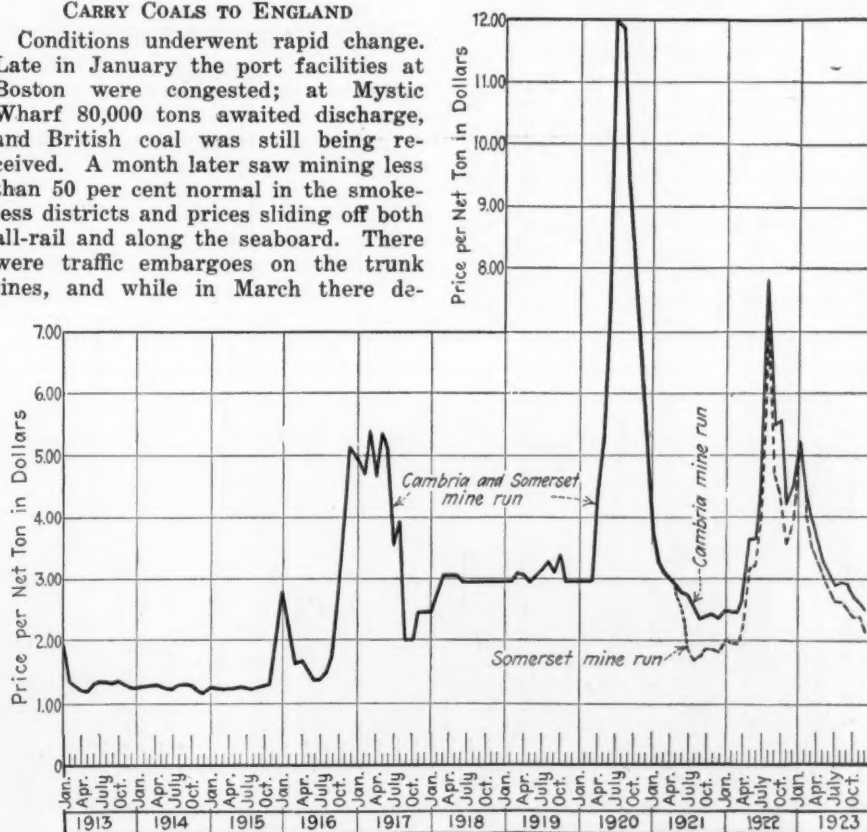
CARRY COALS TO ENGLAND

Conditions underwent rapid change. Late in January the port facilities at Boston were congested; at Mystic Wharf 80,000 tons awaited discharge, and British coal was still being received. A month later saw mining less than 50 per cent normal in the smokeless districts and prices sliding off both all-rail and along the seaboard. There were traffic embargoes on the trunk lines, and while in March there de-

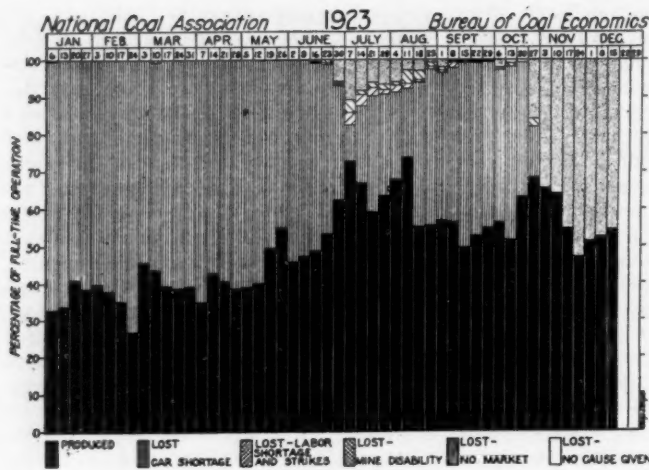
veloped a disposition to hedge on the course of the spring market, it was soon realized that there was little support for prices that were being sought.

It was in March that certain Italian and English orders materialized, and the trade was treated to another paradox. Situations had developed so fast that ships were passing on the high seas, some bound here with English coal on commitments of thirty days earlier, and others outward bound with American coal for Europe. A surplus of shipping both here and abroad depressed marine freights and for series of trips on short days for loading and discharging there were fixtures of coastwise steam tonnage at rates down to 55c., Hampton Roads to Boston, a level that had not been touched since 1914.

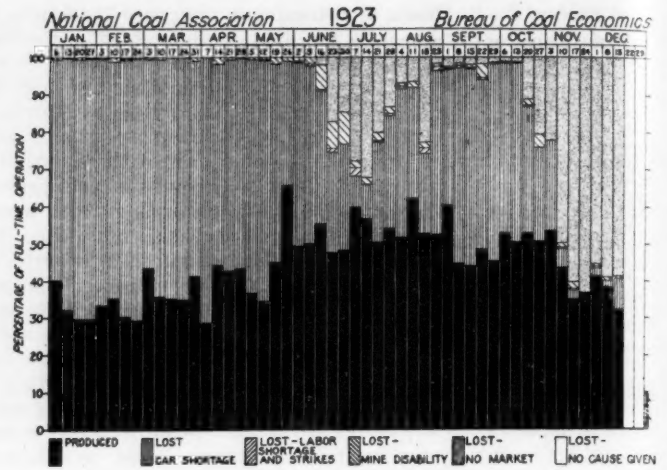
Transportation disabilities had been so persistent and were so recent it was but natural that there should be alarm in the spring over what were regarded as reserves entirely too small for New England's probable consumption, but by mid-June the market's extremely sluggish tone convinced the prophets that there was other ground for anxiety. The cotton mills were curtailing from a third to a half, about every hardening tendency was one after another eliminated, and the market settled down into old-fashioned summer dullness. From May 15 to Nov. 15, a full six months, the f.o.b. market declined steadily from \$7 to \$4.35 per gross ton at Hampton Roads, the on-cars price here suffered a similar drop from \$8 to \$5.18, and further declines were saved only by the most drastic and general cessation of mining. The retail price in Boston



SPOT PRICES F.O.B. MINES ON THE BOSTON MARKET OF MINE-RUN COAL FROM CAMBRIA AND SOMERSET COUNTIES, PENNSYLVANIA



Pocahontas District
PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES



sagged to \$8 at a time when anthracite was selling at \$16.

Until November every purchase was a poor one; and even at the low point it was extremely difficult to entice buying. "Market cargoes" flourished for a brief season, but the toll was too severe, and burned fingers shunned the fire. Toward the end of December it was said there was less coal on wheels at the Virginia piers than at any time in several years, and yet the average price had reacted only to a point barely above \$4.60 f.o.b. vessel. Consuming territory was saturated, and probably not for a considerable period will the market recover from the protracted inertia of the second half-year of 1923.

Thanksgiving time witnessed a slight indication of firmer prices, due partly to a further restricted output and partly to the final absorption of scattered lots of distress coal. Ostensibly the on-car figure at this end was hitched up to \$5.75, but at the time and later there was quiet selling at 50c. less as bargain-seeking buyers put in an appearance.

It was a disheartening season. Only rock-ribbed houses could stand the strain, and it would not be surprising if several of the smaller brokers follow

some of their colleagues into more stable trades where they are not so likely to be caught between the upper and the nether stone.

The year ended with stocks nearly as great as in 1918—probably greater when we consider their proportion to current consumption. The faint spurts of the last two months had worn off; there was virtual stagnation and none but a drab prospect for 1924.

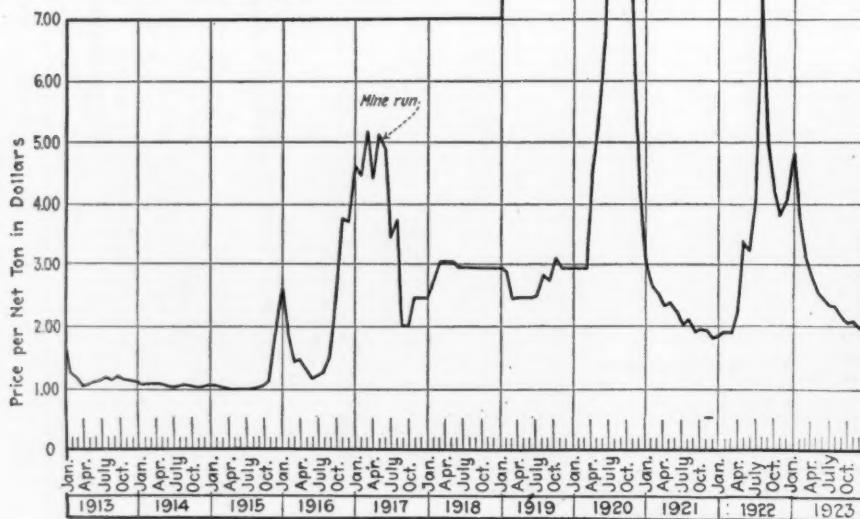
NEW YEAR PROSPECTS

On the threshold of another season the forecast is complicated by a probable renewal of the wage controversy. Buyers who took on coal in December to meet all probable requirements as far ahead as May and June were per-

suaded that in all likelihood prices would not be as low again for a long interval. Moreover, there is a reasonable prospect of suspension in the union fields and a determined effort to unionize operations that are not now organized. What will come of it is on the knees of the gods, unless it is in the mind of politicians to force a conclusion satisfactory to the union leaders. That would be in line with precedent in a presidential year!

Bituminous-Coal Production, Spot Price and Index, By Weeks, 1923

Week Ended	Production (Net Tons)	Week Ending	Average Spot Price	Coal Age Index
Jan. 6...	10,993,000	Jan. 1...	\$4.47	369
Jan. 13...	11,217,000	Jan. 8...	4.54	375
Jan. 20...	10,925,000	Jan. 15...	4.42	365
Jan. 27...	10,985,000	Jan. 22...	4.33	358
Feb. 3...	10,686,000	Jan. 29...	4.14	342
Feb. 10...	10,725,000	Feb. 5...	3.78	312
Feb. 17...	10,431,000	Feb. 12...	3.58	296
Feb. 24...	10,324,000	Feb. 19...	3.49	288
Mar. 3...	10,946,000	Feb. 26...	3.49	288
Mar. 10...	10,627,000	Mar. 5...	3.38	279
Mar. 17...	10,428,000	Mar. 12...	3.24	268
Mar. 24...	10,424,000	Mar. 19...	3.19	263
Mar. 31...	10,430,000	Mar. 26...	2.98	246
Apr. 7...	9,629,000	Apr. 2...	3.05	252
Apr. 14...	10,401,000	Apr. 9...	2.82	233
Apr. 21...	10,221,000	Apr. 16...	2.84	235
Apr. 28...	10,103,000	Apr. 23...	2.79	231
May 5...	10,061,000	Apr. 30...	2.71	224
May 12...	10,175,000	May 7...	2.66	220
May 19...	10,270,000	May 14...	2.73	226
May 26...	11,049,000	May 21...	2.68	221
June 2...	10,091,000	May 28...	2.63	217
June 9...	10,676,000	June 4...	2.60	215
June 16...	10,573,000	June 11...	2.60	215
June 23...	10,422,000	June 18...	2.54	210
June 30...	10,458,000	June 25...	2.48	205
July 7...	8,742,000	July 2...	2.46	203
July 14...	10,925,000	July 9...	2.38	197
July 21...	10,676,000	July 16...	2.40	198
July 28...	10,817,000	July 23...	2.38	197
Aug. 4...	10,565,000	July 30...	2.37	196
Aug. 11...	9,851,000	Aug. 6...	2.36	195
Aug. 18...	10,843,000	Aug. 13...	2.37	196
Aug. 25...	11,383,000	Aug. 20...	2.38	197
Sept. 1...	11,737,000	Aug. 27...	2.44	202
Sept. 8...	10,485,000	Sept. 3...	2.47	204
Sept. 15...	11,378,000	Sept. 10...	2.49	205
Sept. 22...	11,454,000	Sept. 17...	2.44	202
Sept. 29...	11,347,000	Sept. 24...	2.42	200
Oct. 6...	10,699,000	Oct. 1...	2.37	196
Oct. 13...	10,953,000	Oct. 8...	2.30	190
Oct. 20...	10,694,000	Oct. 15...	2.24	185
Oct. 27...	10,919,000	Oct. 22...	2.25	186
Nov. 3...	10,517,000	Oct. 29...	2.23	184
Nov. 10...	10,726,000	Nov. 5...	2.21	183
Nov. 17...	9,717,000	Nov. 12...	2.23	184
Nov. 24...	10,160,000	Nov. 19...	2.21	183
Dec. 1...	8,943,000	Nov. 26...	2.25	186
Dec. 8...	9,929,000	Dec. 3...	2.19	181
Dec. 15...	9,938,000	Dec. 10...	2.18	180
Dec. 22...	10,545,000	Dec. 17...	2.19	181
Dec. 29...	536,489,000	Dec. 24...	2.16	178
		Dec. 31...	2.17	179



SPOT PRICES F.O.B. MINES ON THE BOSTON MARKET OF MINE-RUN COAL FROM THE CLEARFIELD DISTRICT OF PENNSYLVANIA

Passing of 1923 on Atlantic Seaboard Unmourned by Soft-Coal Producers

Disaster Stalks in the Guise of Oil Competition and Sales at Prices Below Production Cost—Anthracite Demand Strong and Prices Hold Firm

By R. W. MORRIS

There will be little regret at the passing of 1923 by the soft-coal producers who ship to the Atlantic seaboard markets. The year was disastrous to them, notably through the loss of trade due to oil competition, principally in bunkers, and the selling of a considerable tonnage at prices, in many instances, below the cost of production. Quite the reverse is true of the hard-coal industry. Demand for domestic coals was strong during the entire twelve months and at no time were operators and selling agents compelled to force sales of the larger sizes. On the other hand the steam sizes felt the competition of oil and soft coal and nearly half a million tons of these coals have been lost within the last couple of years to the trade, the majority of this tonnage in New York alone.

Due to the scarcity of the domestic coals throughout the year many users of these sizes have been converted to the use of either oil, bituminous screened coals or coke, but the tonnage permanently lost is not believed to be large. Welsh anthracite to the amount of about 40,000 tons was brought across the seas to the New York, Philadelphia and Baltimore markets.

The year could hardly have been worse for the soft-coal operator. With the exception of the first few months of the year, prices were low and the producer had the choice early in the year of either selling his coal at a price or of closing his operation. Many chose the latter course. The result was that much of the coal offered to buyers in the New York, Philadelphia and Baltimore markets was of the better grades and much of it at prices usually asked for the poorer coals.

In the East the soft-coal trade played its part with other industries. Demand for coal, like production in industrial plants, was slow and uncertain. Contract coals moved steadily but in reduced volume, while spot buying was slow and considerable of the tonnage went into reserve stocks.

At no time during the year did the soft-coal market show any considerable strength. The year opened firm with prices around \$6 f.o.b. mine for the better grades. With a falling demand along the Atlantic seaboard, notwithstanding the lack of anthracite and the efforts of Federal Fuel Administrator Wadleigh to induce the use of soft coal in order to avoid a fuel famine, prices began to fall and, save for a brief period in late April and early May, continued to drop by degrees throughout the year. Even when it was apparent that there would be a strike in the anthracite region and during the period when the mines were idle, there was no activity in soft coal and most quotations either held steady or showed slight fluctuations.

Spot Prices, F.o.b. Mines, of Bituminous Coal, Southern West Virginia Smokeless, 1923

AVERAGE OF QUOTATIONS ON BOSTON, CHICAGO, CINCINNATI AND COLUMBUS MARKETS

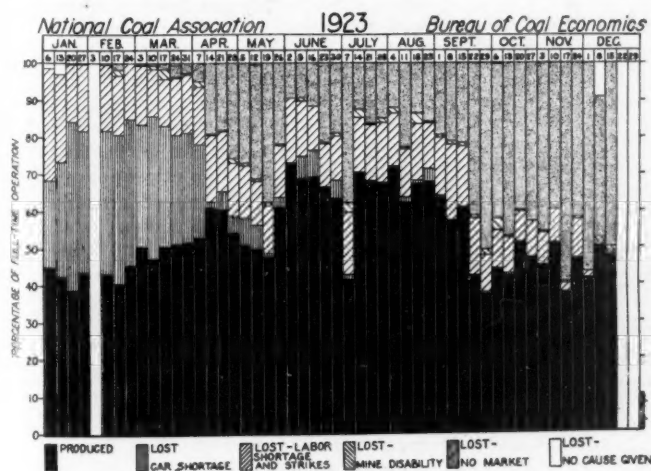
	Mine-Run
January.....	\$5.95
February.....	4.60
March.....	4.24
April.....	3.85
May.....	3.98
June.....	3.79
July.....	3.25
August.....	2.91
September.....	2.90
October.....	2.59
November.....	2.13
December.....	1.97

While the old-line companies adhered to their price schedules, which, with the advance in September occasioned by the increase given the miners in the new wage agreement, did not go above \$9.25 f.o.b. mine, the quotations for independent domestic coals even in the time of least demand did not go below \$11 for stove and chestnut sizes, the preferred coals, and during the periods when demand was strongest reached \$13, with some sales reported at higher figures.

The introduction of other methods of heating big buildings resulted in less demand for buckwheat, rice and barley coals and caused considerable annoyance to the trade, with the result that retail dealers, who desired the domestic coals, frequently found it necessary to take some of the small sizes or bituminous coal with their orders. The effect of this was later felt in the tidewater market when these surplus coals were returned for resale at prices which in many instances were considerably below the current market quotations.

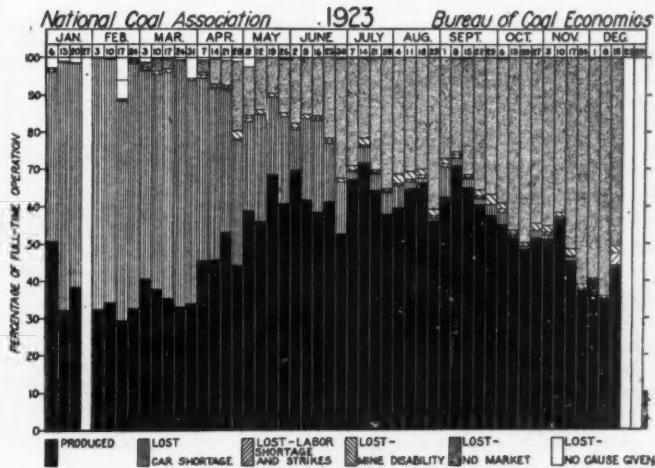
The soft-coal market started the year with lack of supplies and prices in keeping. Car supply was wretched and even the curtailed output due to the holiday season could not be taken care of. The better grades of coal moved either on contract or on consignment, and the coals offered for sale in the open market were of the cheaper grades. Quotations ranged from \$5 to \$6 for Pools 1, 9 and 10 coals but did not remain long on that basis. Railroads were buying and there was a demand for coke to help out in the emergency caused by the lack of domestic anthracite sizes. Reserve stocks in New York, Philadelphia and Baltimore were not heavy and with the scarcity of the better grades of soft coal many consumers were hard pushed.

The trend of the market along the seaboard is evident from the prices submitted to the U. S. Shipping Board at New York early in February for furnishing and delivering alongside vessels in that harbor monthly tonnages of either Pool 9 or Pool 71 coal. These



Cumberland-Piedmont District

PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES



Fairmont Region

Spot Prices, F.o.b. Mines, of Bituminous Coal, Pittsburgh, 1923

	PITTSBURGH (PA.) MARKET		
	Gas Lump	Steam Mine-Run	Gas Slack
January.....	\$5.20	\$3.43	\$3.30
February.....	4.22	2.85	3.07
March.....	3.86	2.52	2.69
April.....	3.10	2.00	2.11
May.....	2.88	2.06	1.76
June.....	2.86	2.13	1.53
July.....	2.66	1.97	1.46
August.....	2.78	2.11	1.55
September.....	2.93	2.25	1.50
October.....	2.56	1.92	1.20
November.....	2.55	1.95	1.14
December.....	2.51	2.02	1.53

ranged from \$7.33 to \$9.10 per gross ton for three months delivery, and \$7.20 to \$8.74 per gross ton for six months delivery.

After the first six weeks of the year consumers began to look for bargains, buying only when they desired and prices were right. They held fair-sized stocks and the better grades were scarce in the spot-coal market. Operators became hungry for business and some thought was given to the closing of mines unless conditions improved.

Prices continued to decline. A contract was awarded for delivering 250,000 tons of Fairmont or Kanawha gas coals alongside, Boston and Providence, for railroad use at \$5.95 and \$6.04 respectively. In April quotations for Pool 1 coal reached \$4 and operators thought the bottom in prices had been reached, but before the close of the year this quality of coal was quoted as low as \$2.75 in the open market, with some sales reported at lower figures.

There was keen competition in the Baltimore market during the early autumn, due in part to heavy buying by one of the Canadian railroads as a result of a strike of Nova Scotia miners. Screened bituminous coals and coke were active previous to the settlement of the anthracite wage agreement, but following its signing they were almost discarded.

Demand for hard coal was heavy in all twelve months. Although, as indicated by the Geological Survey reports, production was maintained at a high rate throughout the year, receipts along the seaboard were not sufficient to meet the demands of consumers.

Demand for anthracite domestic sizes along the Atlantic seaboard was active the entire year. The strike of 1922 had left the country bare of hard coal and when Jan. 1 arrived there were no stocks available. The hard-coal consuming states were in the hands of fuel administrators and fair-price committees as well as distributing bodies whose efforts were devoted to seeing that the coal was evenly divided and that everybody was kept warm. Consumers in nearly all communities besieged retail yards while the dealers sought help from producers and selling agents.

In New York as well as other cities peddler pools operated under the direction of the State Fuel Administration bodies, and although the operators asserted that allotments were up to 60

per cent of former years, the loss of 40 per cent being attributed to the miners strike of the previous year, the public called for more coal. The use of substitutes was advocated by the authorities and largely adopted by consumers, many still continuing the use of coke and oil.

On April 1 anthracite mine operators reduced prices on steam coals 50c. a ton and two companies cut 15c. from their price for pea coal. No changes were made in the other domestic coal prices. Likewise cuts were recorded on retail prices in most of the Eastern cities. Immediate filing of orders was urged upon consumers by both retail

dealers and by the Federal Fuel Administration.

Soon after the resumption of mining on Sept. 20 the larger operating companies announced an increase in mine prices for the domestic sizes ranging from 70c. to 90c. for egg, stove and chestnut coals and 15c. to 30c. for pea coal. This was soon followed by increases of about 75c. a ton by retailers.

Early in December demand for independent coals fell off and quotations, which had held around \$12 for several weeks, became easier, dropping to around \$11 for stove and chestnut and less for the other sizes, with indications pointing to further cuts.

Bright Early Outlook Unfulfilled In Pittsburgh Market

After First Three Months the Coal Trade Waited in Vain for Relief from Depression—Anthracite Strike Scare Had Fleeting Influence
—Connellsville Market Ran Similar Course

By B. E. V. LUTY

Except for the first three months, 1923 was a poor year for the coal trade in the Pittsburgh district. A combination of heavy demand and restriction of production by car shortage held prices at a high level during January and February, compared with normal times, but they declined sharply in March, being at an unsatisfactory level for the remaining nine months of the year. Pittsburgh district steam coal in the spot market was at \$3 or higher throughout January and at above \$2.50

throughout February, but by the end of March the market was down to about \$2.

For about six months after April 1 the trade lived more or less in hope that something would occur to lift the market out of its rut—a car shortage or some other influence—but nothing occurred except a mild rise in August, on the occasion of the anthracite suspension scare.

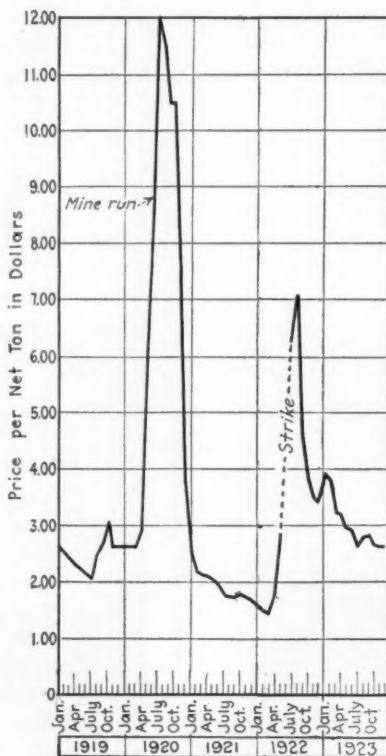
The Pittsburgh district sold heavily in the lake trade, getting a larger share of the business than in many preceding years, but at the expense of prices. Lake buyers practically made the market. Early in the season operators quoted on season contracts considerably more than the spot market, but lake buyers simply bought in the spot and prompt market until finally the operators yielded and sold for the remainder of the season at only a trifling premium above the spot level.

Production in the district was highest in August and September, reaching approximately 80 per cent of mine ratings.

Youghiogheny gas coal held much better in price than steam coal, the better grades being in control of strong operators, able to leave the coal in the ground rather than accept prices that would not net full depletion charges.

The district experienced strong competition from many adjacent fields. There was more competition from West Virginia than from the Connellsville region, where the best coal had a good outlet in beehive and byproduct coking, while the poorer coal, chiefly Sewickley vein, cannot compete at all in quality with the Pittsburgh seam.

Connellsville byproduct coal brought good prices during the first three months of the year. The spot market went down to about \$3 and consumers expected to buy second quarter on



AVERAGE SPOT PRICE, F.O.B. MINES, ON PHILADELPHIA MARKET OF MINE-RUN COAL FROM FAIRMONT DISTRICT

about that basis, while operators looked for a rise, and some were unwilling to sell beyond April at \$3.25. By the middle of the year competition had brought the market down nearly to \$2 and the average realization during the second half of the year was but little above that figure. In many cases the making of contracts was practically abandoned, the transaction of business occurring substantially by the buyer posting a price and accepting deliveries at the price until further notice.

The Connells-ville coke market had gone well above \$10 during the strike of 1922 and was not only slow in declining but had its decline arrested in November of that year, showing a slightly higher price in December, and then a higher price still in January, 1923. Late in January the market began to soften, and this continued until the middle of February, when furnacemen seemed to become fearful that they would not be fully supplied during the second quarter. The pig-iron market was then rising rapidly. What amounted almost to a stampede occurred, and after one or two second-quarter contracts were made at \$6.75 the market advanced to \$7@7.25, while one or two contracts were made at \$7.50.

Almost immediately after the last second-quarter contract was made, and before the end of March, the spot market began to weaken, and then in the next two months it tumbled, so that by early in June coke could be bought readily at \$5, while furnaces were paying on their contracts an average above \$7.

Third-quarter contracts naturally proved much harder for the operator to put through than second-quarter contracts had been. There was a fair volume of business done at \$5.25@5.50, but some consumers refrained from contracting, preferring to buy from time to time, and they saved money, for during the entire third quarter the prompt market ranged well below \$5. For the fourth quarter there was little contracting.

Coke production in the Connells-ville region increased quite sharply in the first three months of the year, held steady in the next three months and

then declined almost continuously and rather sharply in the second half of the year.

For the fourth quarter a Youngstown steel interest with byproduct ovens took a contract with a merchant furnace which normally had bought Connells-ville coke, by naming a lower price than Connells-ville operators could meet. The steel interest was faced with lighter blast-furnace operations and it was highly desirable to keep its byproduct ovens warm.

Monthly average of spot or prompt furnace coke and 72-hour selected foundry coke, per net ton f.o.b. ovens, Connells-ville region, were as follows in 1923:

SPOT PRICES OF CONNELLSVILLE COKE, 1923

	Furnace	Foundry		Furnace	Foundry
Jan.	\$8.30	\$9.25	July	\$4.60	\$5.60
Feb.	7.30	8.50	Aug.	4.65	5.55
Mar.	7.35	8.60	Sept.	4.60	5.90
Apr.	6.25	7.80	Oct.	3.85	5.30
May	5.25	6.50	Nov.	3.90	5.25
June	5.00	5.85	Dec.	3.90	5.25

Year of Early Promise at Cincinnati Came to Blue Finish

Wide Diversity of Elements Tended to Muddle Market—Pressure Following Strike Lessens as Coal Pours In from All Points—Mild Weather Proves Finishing Touch

BY HAROLD WILSON COATES

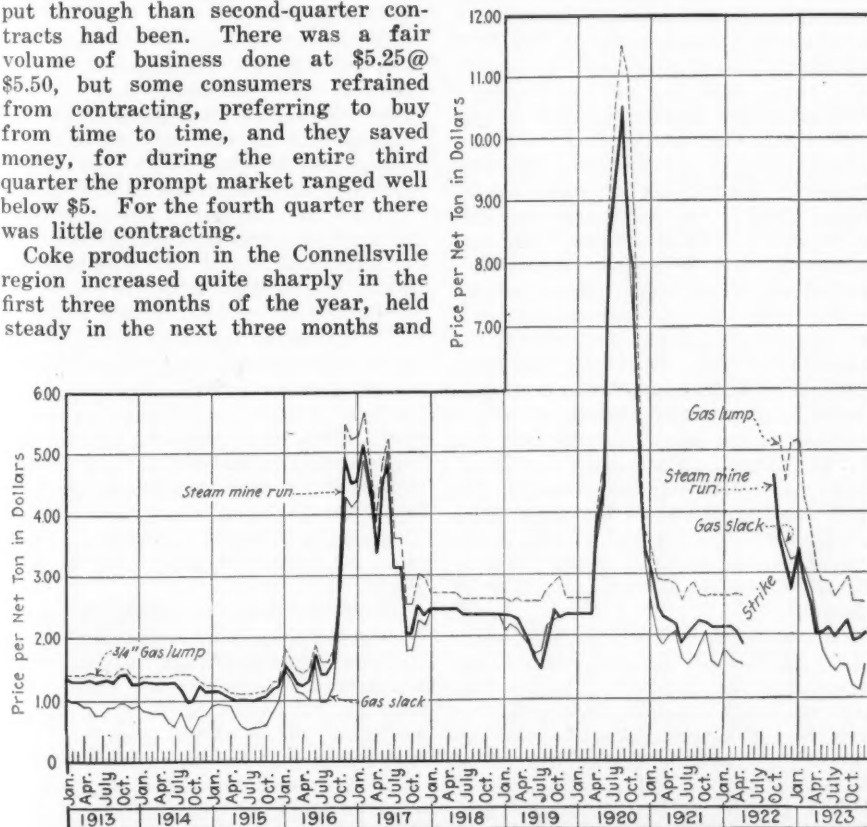
Greater variety to a year's endeavor in the coal business has scarce been witnessed at the Cincinnati gateway than in the one that has just closed. It did not run in streaks of fat and lean—it was either good or "good and rotten." Every element that there is to provide a scrambled condition can be found in turning back the pages to get a summary of the swing of the trade in the past twelve-month. Things that could be relied upon to chart the way went by the board and the close of 1923 found most of the trade at this point sitting around rather blue—with little roseate in the outlook.

And 1923 started out with the best of

prospects. The high tide of pressure for coal following the labor trouble continued with the dawn of the new year, and even though the union mines to the north, east and west were pouring out their offerings there seemed to be no let-up to the demand for West Virginia and Kentucky offerings.

Perhaps the earliest intimation that things were a bit out of the usual groove came in midwinter, when brokers and wholesalers as well as firms with direct mine connections found that lake buyers were not rushing madly into the market to make deals for the opening of navigation. By mid-February cars were being reported in distress and it appeared that the reservoirs were filling up with coal, a sure sign that the era of high prices was breaking and that if there were to be price readjustments these would be more violent than ever. The lake buyers held the whip hand, and they continued to hold it until the last cargoes were on their way. In fact holding to this one angle, lake purchases of coal failed to figure prominently in this market's affairs much after the latter part of August.

By April 1 nearly all of the buyers—except probably the takers of smokeless coal—were playing a waiting game. Salesmanship had to be reckoned with and the "order takers" of several months past were sent out to beat the highways and byways and turn in business. May saw a new element enter-

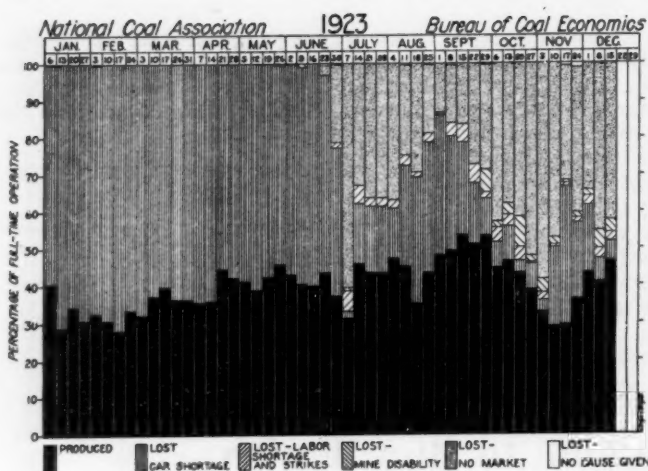


SPOT PRICES, F.O.B. MINES, ON THE PITTSBURGH MARKET OF COAL FROM THE PITTSBURGH DISTRICT

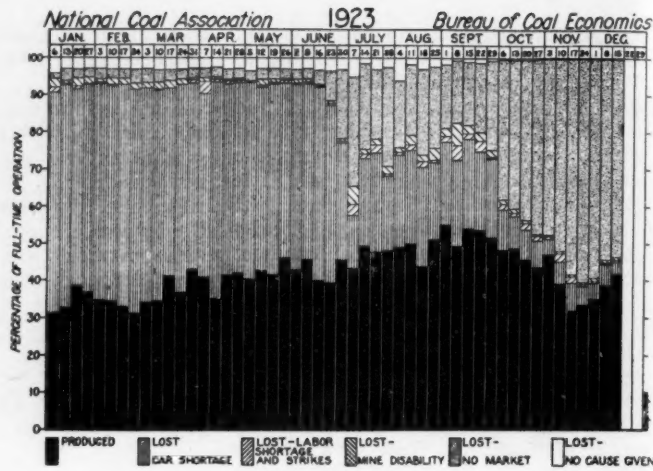
Spot Prices, F.o.b. Mines, of Bituminous Coal, Kanawha, 1923

AVERAGE OF QUOTATIONS ON COLUMBUS AND CINCINNATI MARKETS

	Lump	Mine-Run	Screenings
January.....	\$6.14	\$3.52	\$3.27
February.....	4.56	2.82	2.44
March.....	4.14	2.93	2.49
April.....	3.76	2.46	2.33
May.....	3.46	2.12	1.82
June.....	3.17	1.90	1.44
July.....	3.09	1.80	1.09
August.....	3.12	1.78	1.10
September.....	3.44	1.87	1.24
October.....	3.30	1.73	.93
November.....	3.11	1.69	.83
December.....	2.79	1.63	.97



Winding Gulf District, W. Va.



New River Field

PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES

ing the situation. The weakened car supply, caused by the shopmen's strike of the year previous, was being remedied. More than that, new equipment was beginning to show on the roads, and this brought to an end, for the time, the question of whether the coal could be moved or not. In this respect it might be said that the statistics of the regional director for the American Railway Association will show figures for each week of the year ranging from 8,000 to over 10,000 cars a week being interchanged from south of the Ohio River to the north for 1923 and it is only three or four years ago that a 5,000-car or higher week was an exception.

The latter part of May and the first of June saw the flooding of the inland markets. Diversions from the lakes on several occasions threatened to "break" the market here, but prices kept the even tenor of their downward way (with the exception of the low volatile) and nothing seemed to stay the trend. For the first time in many months there came talk of lowering production and the July holidays saw some of the mines closed down with an intimation that they would be unable to resume until either volume business was obtained or better prices were offered.

August brought a peculiar situation. It was the old story—the coal came along without a definite destination and "spoiled the party." This grew so unwieldy that there were really two sets of prices for fuel passing through this mart. One represented a figure that miners of standard coals set upon their tonnage and below which they refused to budge; the other the day to day quotations from the brokers and wholesalers, sometimes \$1 to \$1.25 a ton below the set figures, but which had its ultimate effect upon the top prices. Domestic business was now getting the bulk of attention and with the screens going in again, slack had to be sacrificed as long as the price of sized stuff held up. September saw it ranging around 75c. a ton and the last of that month brought it even lower.

Now the autumn swing of business

should have been on—it was a weather proposition once more, but up to this writing old Boreas has failed to function. That has been the "last straw," for without Jack Frost the rail communications with the mines have been unimpeded and the interchange shows that production for the past three months has continued "top notch," even though reports come in from all quarters of mines closing down or suspending.

The first of the year saw the mad scramble for Pocahontas No. 3 coals still on. There was still the flavor of the "government price" in the air and quotations of \$7@7.50 for the prepared sizes were being made by the standard companies. Most of their business was under contract or being allotted to customers, so that brokers could and did make sales at \$8@8.50 for what tonnage they could lay hands on. Lump was quoted at \$6@6.50 with about the same price for screenings.

From April 1 on, with the exception of a break in June, the low-volatile coals ranged pretty well around \$6 for prepared and \$4@4.25 for mine-run and screenings. It is rather remarkable that these prices were maintained up to about the last of September while the high-volatile coals were struggling along facing week to week reductions. The first to feel the gaff was mine-run, which following the closing of active business of the lakes, dropped into the \$2@3 range. Since then readjustments have followed that brought the price down to \$3@3.50 for lump, \$1.75@2.25 for mine-run and \$1.25@2 for screenings. At no time during the year did labor trouble disrupt the flow of this coal.

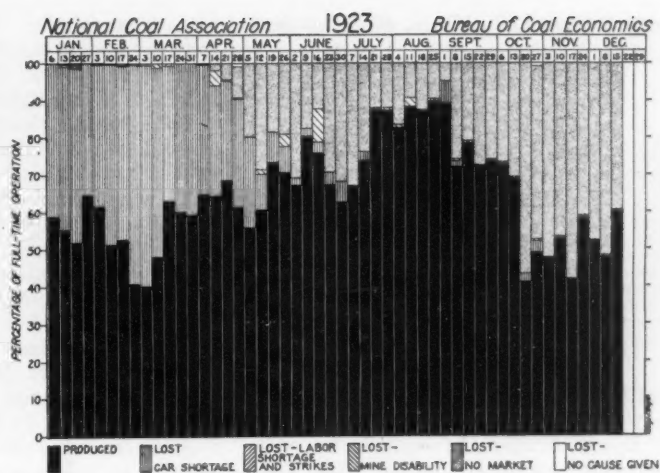
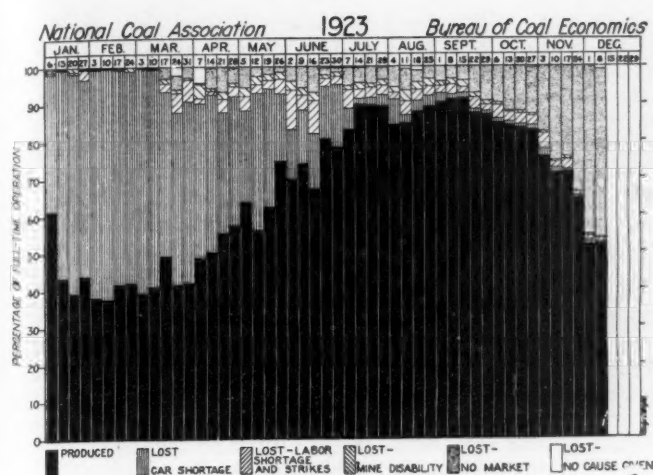
The southern West Virginia high-volatile fields still are the volume producers for this market. Those who keep an eye on Logan County assert that she will again create a record for coal shipped up the Guyan branch of the Chesapeake & Ohio. Until early autumn the Norfolk & Western high-volatile mines had their lean streaks, especially when motive power and car

supply were not of the best, but the summer business was all that could be asked. These latter mines responded quickest to the waning prices and some of them have been down for months rather than show "red figures" on the ledgers.

The story of the ups and downs of this territory as well as of the Kanawha and Coal River groups is told best in the figures when it is considered that last January 4-in. lump sold around \$5.75@6; mine-run \$3.75@4.25 for byproduct; mine-run steam at \$3.25@3.50 and slack \$3@3.50. By April the best lump was selling at \$4.25 top, mine-run at \$2.50 and slack \$1.75@2. The midsummer spread saw virtually another dollar reduction and from that it has whittled off to the present low ebb.

The volume of tonnage that has been coming from the Hazard and Harlan fields to the Cincinnati market continues to show the upturn that has marked this as one of their primary markets for the past twelve years. The expansion of these fields as well as the extension of equipment there mean even more coal pouring through as time goes on. The word that the Louisville & Nashville and the Clinchfield roads will be "hooked up" so as to give a seaboard outlet through Southern ports is going to mean much. That figures in this review because of the virile prospects. During the past year there has rarely been a time when prices on Hazard and Harlan coals have been more than 25c. out of range with the same types of coal from the southern fields of West Virginia, so it would be merely a repetition of figures to go over that once more.

There is this exception, however: During the first three or four months of last year—and it always happens when prices perk up—there was a differentiation in the price of byproduct and malleable, the good gas coals and just coal (or steam, for lack of a better or more suitable name). Today all of these niceties both in buying and selling seem to have gone by the board. Strange, isn't it?



PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES

Midwest Suffered in 1923 Markets but Produced Tremendous Volume

Price War Badly Disarranged Normal Trading Fields, Giving Northwest Largely Back to Docks—Illinois and Indiana Output Fourth Largest in History, Kentucky Second

A bitter year for the coal producers of the Middle West was 1923. It was a year in which they all had to stand the gaff or quit—and a considerable number quit. The whole year long markets were languid. The one thing that held prices fairly firm during the first two months was railroad disability. After that collapse was staved off by the heavy program of spring and summer coal storage by railroads and a few large industrials. There was not enough summer buying, however, to prevent a long, steady decline in the market, which ran through a warm, discouraging autumn relieved with only a little upward curve in September and declining into a veritable slough of despond late in the autumn.

Despondency blanketed the solidly unionized states of Illinois and Indiana practically all year and gave none too much encouragement even to half-union Kentucky, which had a great year of production. Many shutdowns were made in the union fields during the summer and more in November. In Illinois 16 mines during the year went out of business for good and by Dec. 1, when business is supposed to be good, 75 more were standing cold, with the remainder

working only two days a week. A total of 25,000 men were out of jobs while the rest got less than half time. Indiana was in exactly the same shape proportionately.

Unionized western Kentucky closed down 76 mines late in the autumn because of inability to find markets for coal even at the ruinously low prices that had been accepted merely in order to hold the mine organizations together preparatory to a possible clean-up in case of a strike of all other union fields next spring.

Yet production, in spite of low-level markets, was high for the year. Illinois reached 69,000,000 tons by Dec. 1 and promised a year's total of about 75,000,000 tons. Only three other years in history exceeded this—1918, with 89,000,000 tons; 1920, with 88,000,000 tons, and 1917, with 86,000,000. Indiana on Dec. 1 was passing 22,500,000 tons, which guaranteed that state at least a fourth-best year in its history, exceeded only by 1918, with 30,600,000; 1920, with 29,000,000, and 1917, with 26,500,000 tons.

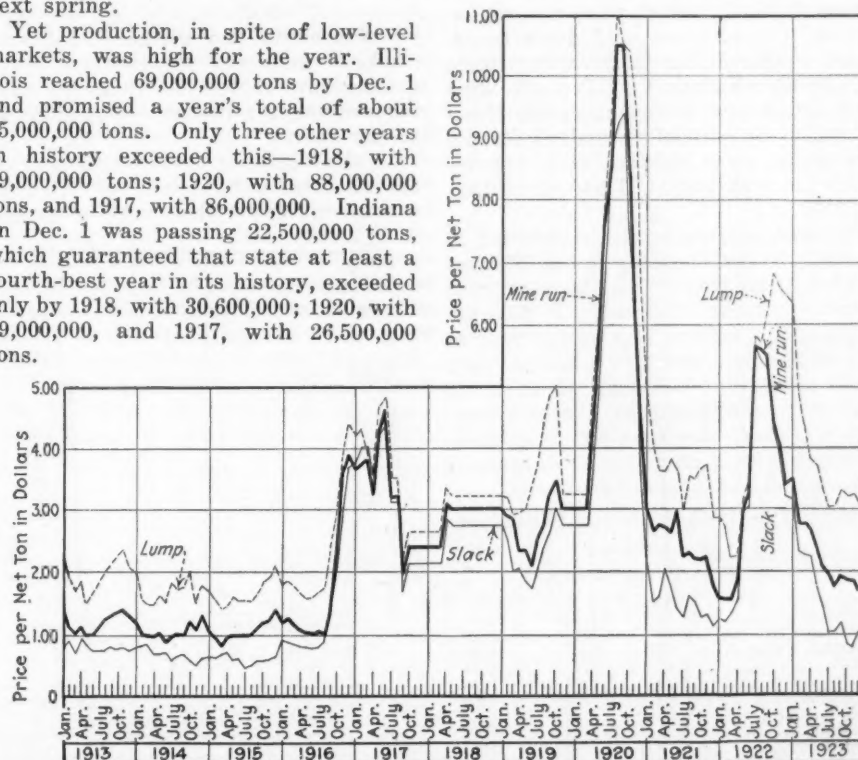
Kentucky, bitter competitor of these two states, had the second best year of its career, thanks to a tremendous Lake trade for most eastern Kentucky coals and thanks to the great drive by rail which Kentucky, both west and east, made into the North and Northwest. In the first ten months the Kentucky total was 33,000,000 tons. By the end of the year the 1920 total of 35,700,000 tons was passed, leaving only the great strike year of 1922, with its monumental total of 40,000,000 tons, to stand above 1923.

The battle for markets was waged fiercely during the summer and throughout the autumn. Price was the principal consideration everywhere. In the Northwest, Illinois coal admittedly was driven southward in Minnesota and northern Iowa by the docks. The great volume of cheap Eastern coal that cost

Spot Prices, F.o.b. Mines, of Bituminous Coal, Eastern Kentucky, 1923

AVERAGE OF QUOTATIONS ON LOUISVILLE, CINCINNATI AND CHICAGO MARKETS

	Lump	Mine-Run	Screenings
January	\$6.32	\$3.51	\$3.17
February	4.86	2.76	2.34
March	4.37	2.76	2.28
April	3.84	2.67	2.26
May	3.71	2.39	1.79
June	3.33	2.09	1.46
July	3.01	1.92	1.02
August	3.04	1.75	1.05
September	3.31	1.92	1.18
October	3.21	1.87	.84
November	3.23	1.85	.80
December	3.08	1.71	1.03



**Spot Prices, f.o.b. Mines, of Bituminous
Coal, Pittsburgh No. 8 District,
Ohio, 1923**

CLEVELAND (OHIO) MARKET			
	Lump	Mine-Run	Screenings
January.....	\$4.95	\$3.49	\$3.25
February.....	4.30	3.42	3.10
March.....	3.76	2.76	2.58
April.....	2.93	2.22	1.94
May.....	2.94	2.17	1.65
June.....	2.75	1.98	1.34
July.....	2.54	1.92	1.27
August.....	2.60	2.04	1.27
September.....	2.66	2.09	1.30
October.....	2.58	1.90	1.05
November.....	2.56	1.90	1.05
December.....	2.47	1.91	1.47

but \$1.50 at the lower Lake ports, 45c. lake freight, 25c. or less across the docks and \$2.25 rail freight to the market battle ground around the Twin Cities and below, was strangling the normal Illinois northward flow. Also cheap Pocahontas mine-run at \$1.50 or even less cut into both Illinois and Indiana from the east. The result of this market scramble was a reduction of prices to a point where a large volume of Midwest coal moved at a loss—sometimes a heavy loss.

As the new year 1924 dawned most Midwest producers looked forward to April 1 as a definite stopping point, though a few were inclined to say: "Well, there's no use trying to whip this union into taking a reduction in wages, so the next best thing is to sign up so as to be sure the market stays flat, thus preventing any of these fly-by-night operators from getting back into the business, and then take our chances." Somehow I have an idea that's just what will be done.

At the beginning of the year prices were reasonable, but poor car supply cut down volume. In Illinois and Indiana prices were rather firm. Good association lump from southern Illinois brought \$5.50, though price-cutting independents at times sold down to \$4. Good southern Illinois screenings were \$2.75@\$.3. Fourth Vein Indiana lump and screenings moved at nearly those same levels. Illinois Standard district operators were able to make money with lump at \$4@\$4.25 and screenings \$1.75@\$2.

Viewed only from the standpoint of prices, the coal industry in the Midwest was "sitting pretty," but poor railroad service cut the volume low. Whereas Illinois and Indiana started the year at about 65 per cent of capacity, they both went into February at about 50 per cent and Kentucky slumped even more. There was no great interest in storage among any class of consumers

except gas plants. Nobody was crying for coal and it can frankly be said that car shortage is all that saved the market from a bad February slump.

The general shading of the market started late in February, when Indiana and Illinois clipped from 25c. to 50c. from everything except big lump. By that time a good deal of smokeless from West Virginia had begun to percolate into the Midwest at prices that were tapering down. Pocahontas lump and egg that had sold in Chicago at the beginning of the year for \$8 was easy to get at \$7.25. By March 1 it stood at \$6.50 on its steady downward way to the \$3 it reached by the end of the year. Pocahontas mine-run, which opened the year at \$5, coasted down all spring and summer until it reached \$1.40@\$1.50 awhile before the end of the Lake season. Periodically all year the Midwest caught floods of this coal.

The spring struggle to get consumers to contract was vigorous but largely unavailing until the government officially advised industrial summer storage on a large scale. Then the Western railroads that were in soundest financial conditions began putting coal on the ground. The Illinois Central, Burlington and Big Four entered upon great programs ranging up to a million tons, accepting, at various times, about every size of coal produced on their lines. These contracts varied from \$2.50 to \$3. They made nobody rich but they resulted in long runs of production.

The car supply, which had been so poor during the winter months, improved rapidly with the coming of spring. That started the general tumble of prices. By late March the percentage of causes for lost working time at mines experienced a complete change. That charged to bad car supply flopped to "no market," and "no market" increased all summer long, getting low enough at times so that the average for the year was close to 50 per cent.

In the domestic trade various price experiments were tried by Midwest producers. May 1 the Franklin County

lump price was hoisted from \$3.85 to \$4.10 and on June 1 to \$4.35, where it remained, so far as circulars were concerned, until late in the autumn, however. The circular price was by no means maintained, and finally, with the virtual collapse of the market early in December, Franklin County lump caved to \$3.75 and other Midwest coals followed. Central Illinois was \$2.75; Fourth Vein Indiana, \$3.25; Mt. Olive (Ill.), \$3; Standard district, \$2.75, and West Kentucky, \$2.75.

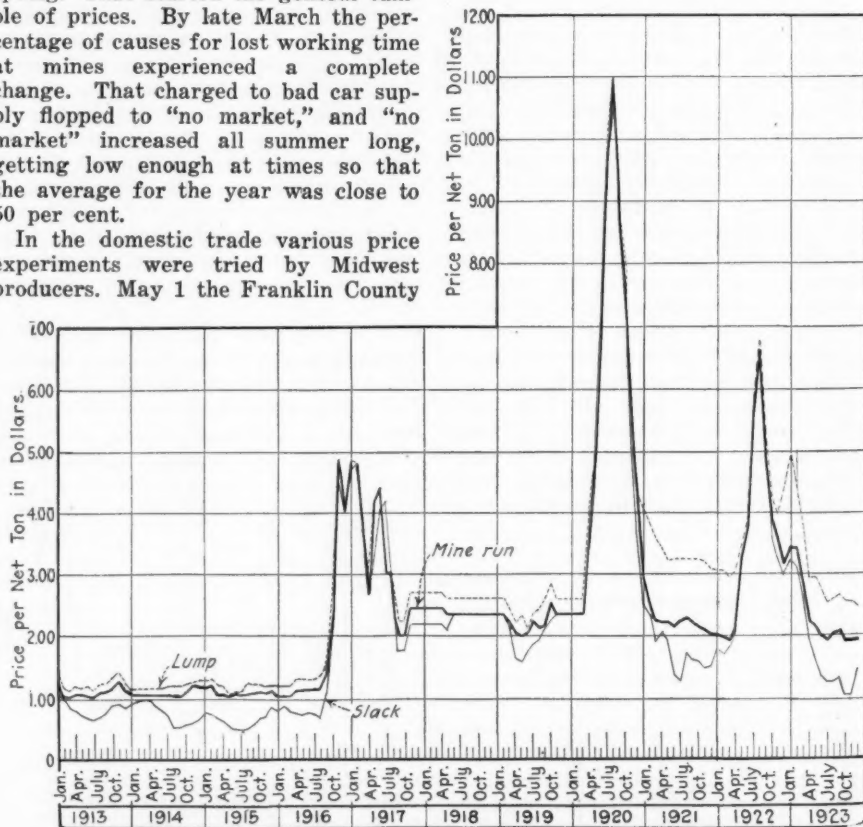
All during the summer the market was so lifeless that price cutting created no business. For a long time in St. Louis practically no trading was done, except a little on the lowest priced coal within reach—Standard district, whose lump at one time got down to \$2. In those months the best lump nearby—Mt. Olive—moved practically not at all because the operators were unwilling to give it away for less than \$3.

All the while the Midwest drive into the Northwest by rail was going on. Coal moved into that territory at times but on narrowest margins and against throat-cutting competition.

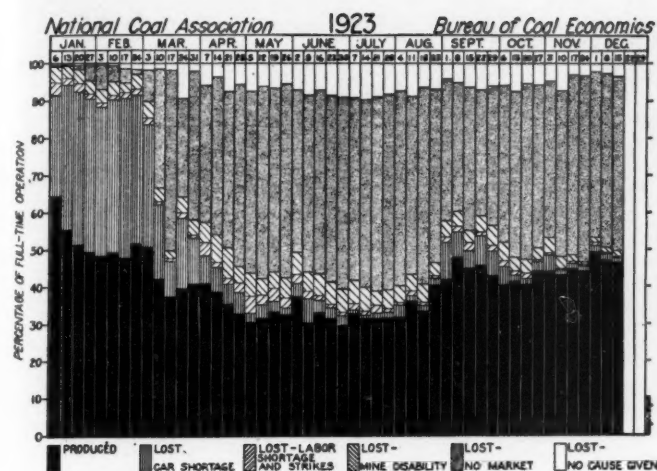
The anthracite strike in September had very little effect on the flat Midwest domestic market. Not much home-produced coal was sold because of the fact of the strike, though soft coal was favored by the increase which Governor Pinchot's strike settlement slapped onto the price of anthracite. This increase added 50c. to 90c. a ton in Midwest retail yards. But by the same sign a large number of householders shifted clear away from all coal and

**Spot Prices, F.o.b. Mines, of Bituminous
Coal, Hocking**

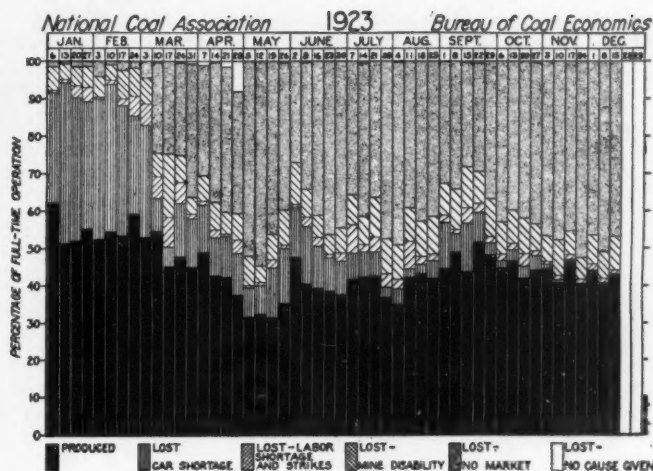
COLUMBUS (OHIO) MARKET			
	Lump	Mine-Run	Screenings
January.....	\$5.13	\$3.02	\$2.75
February.....	4.39	2.63	2.26
March.....	3.92	2.48	2.05
April.....	3.05	2.14	1.71
May.....	2.73	1.97	1.53
June.....	2.69	1.89	1.30
July.....	2.75	1.88	1.23
August.....	2.75	1.88	1.10
September.....	3.04	1.93	1.15
October.....	3.08	1.90	.94
November.....	2.96	1.88	.80
December.....	3.08	1.70	1.03



SPOT PRICES, F.O.B. MINES ON THE CLEVELAND MARKET OF COAL
FROM THE PITTSBURGH NO. 8 DISTRICT OF OHIO



Illinois



Indiana

PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES

installed oil burners. The tonnage of smokeless used in the Central West also increased greatly, so that Midwest coals lost more than all they might have gained by reason of anthracite's difficulties.

The steam market naturally suffered all the year. Screenings began to pile up around Midwest mines. Big mine-run contracts to railroads gave some relief at times during the spring and summer, but the open market always was full of steam coal. Prices slid lower and lower. Very few producers put any screenings on the ground. When Franklin County screenings bumped down to \$1.75 in June, central Illinois, Standard district and west Kentucky fines were at \$1.50 and sinking. Nothing stayed the grand slide.

In such periods medium-grade fields got screenings business because they had short freight rates to strong markets. This is what enabled central Illinois and Indiana to sell screenings in Chicago for \$1.50 when other regions could hardly dispose of any at all. But the worst was yet to come.

In October producers tried their best to hold back their screenings so as not to give them away. The railroads stood for tied-up cars as long as they could and then forced the disposal of great volumes of this coal on wheels. The result was Franklin County sank so low that it touched \$1 now and then, central Illinois got down to 80c. and Standard district to the ridiculous level of 40c.

In November, with such conditions prevailing in the steam market, the Standard Oil Co. quit trying to operate its two mines in Illinois, shut them down cold and contracted for about all the available central Illinois screenings output to April 1 at \$1.25.

General shutdowns all over Illinois and Indiana finally prevented the steam market from going clear through the bottom, and by the end of the year production was down low enough so that Franklin County had pushed its screenings back up to \$1.65, central Illinois to \$1.50, Standard district to \$1.10 and west Kentucky to 85c. @ \$1.

Kentucky had a troublous year. While the market during the early part

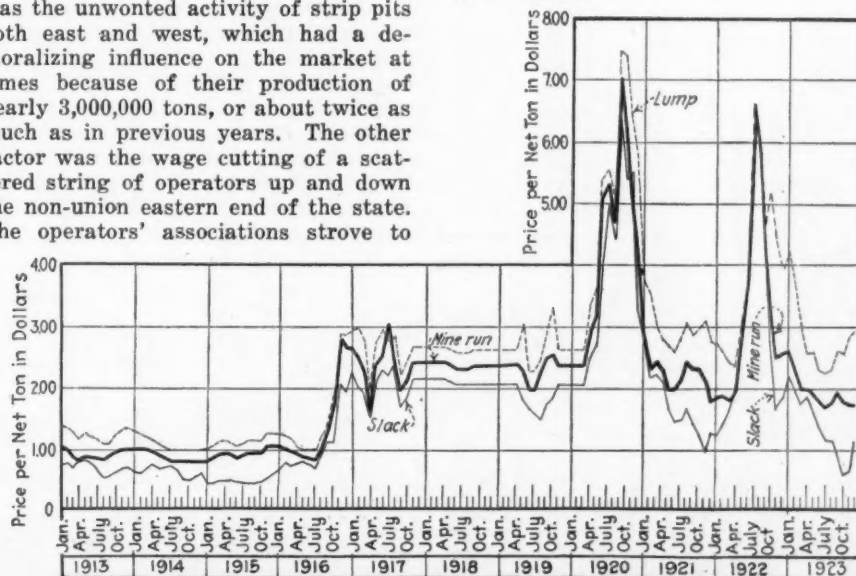
of the year ranged from \$2 to \$3 above the same months of 1922, car supply choked all Kentucky down to about one-third of its potential production until well along into the spring in time for the Lake season. By that time, however, prices had dropped until good eastern Kentucky lump and mine-run, which had opened the year at \$6.50 and \$4, had declined to \$4.25 and \$2.85. By the middle of the summer this same coal had slumped another dollar.

During October, with the bottom about out of the market, in spite of fairly good fag-end Lake movement, some ridiculously low prices were quoted on various Kentucky coals. Elkhorn mine-run in distress and in the hands of jobbers sold down to 85c. Harlan and Hazard gas mine-run was circulated at the time for \$2 @ \$2.25, but some of it sold as low as \$1.50. Toward the end of the year \$3.50 was a good price for best eastern Kentucky lump as compared with \$6.50 the December before, and nothing interfered with the production of it except the trifling fact that hardly anybody wanted it at any price.

Two factors added to the Kentucky perturbation during the summer. One was the unwonted activity of strip pits both east and west, which had a demoralizing influence on the market at times because of their production of nearly 3,000,000 tons, or about twice as much as in previous years. The other factor was the wage cutting of a scattered string of operators up and down the non-union eastern end of the state. The operators' associations strove to

hold these interests in line, but with only moderate effect. The wages of 1917 were paid in several mines during November and December, with the inevitable market undercutting. Somewhat of chaos was created in that section including an unexpected show of secret union strength and the usual movement for consolidating many mines under a few ownerships was brought to the fore.

Western Kentucky, also handicapped during the spring by car shortage, produced a vast tonnage during the summer and, with the aid of low prices, sold it all over the middle of the United States, striving for new markets. This coal was a serious factor as far north as Minnesota. Where a nation is full of coal, however, and where margins of profit are narrow or absent, such production could not continue; so by the end of the summer about 75 Kentucky mines were shut down. Many of them reopened in September only to shut down again in November after a hopeless effort. The general hope—and expectation—in all Kentucky is that the union bituminous coal fields of the nation will be tied up by a long strike beginning April 1.



SPOT PRICES, F.O.B. MINES, ON THE LOUISVILLE MARKET OF COAL FROM WESTERN KENTUCKY

West's Production Broke No Records and Market Is Lifeless Generally

Efforts to Get More Favorable Freight Rates Were Unavailing
But May Produce 1924 Results—Labor Troubles Few—
Two Terrible Explosions Occur

Little delight was registered by the coal producers of the West and the Southwest during the year 1923. In the mountain states Utah dropped about 600,000 tons under last year's production and Colorado rose about 500,000 tons above it, but this does not mean that the two states experienced a lively market at any time, and the price of their coal was low. In Kansas and Oklahoma the wails of the coal man are loud and mournful. "The least profitable season in history," they say, and the fact that Kansas production went 600,000 tons above the 2,955,000 tons of 1922 helps not at all. Average Kansas selling price was \$1 a ton less than in 1922. In the other Southwestern states—Oklahoma, Missouri and Arkansas—the output fell well below that of last year.

The hope of changes in freight rates out of both these two groups of Western fields during the year was not realized. The mountain producers met the dock coal at the usual points in the North and Northwest and could not drive further. The strong appeal for more favorable rates from the mountains into the Missouri River region was not granted during the year but Colorado men are hopeful of aid from this source soon. If it comes, markets will be extended. The Southwesterners tried in vain to get an important readjustment of rates on coal from their own and the Illinois fields into the Kansas City-to-Omaha territory, and so there was no general change in competitive conditions except that Illinois producers, hampered by stiff competition elsewhere, shipped more coal into Kansas and Nebraska than usual.

Thus the year ran its course with nothing much in its favor except a comparatively calm performance by labor. Uncomfortably short running time in all fields a good deal of the year offers no good argument for an increase in union wage scales for 1924 but producers in the union fields of the Central West look for a cessation of labor for a while after April 1 in which

to get the present labor contract renewed. In Wyoming and Washington union operators want no cessation. Many of them are ready to sign a continuance of the contract right now.

In Kansas and Oklahoma oil competition was as sharp as ever, but the operators snatch at the straw of hope that oil prices may rise during 1924. To regain the market lost to oil it is necessary to lower the cost of production and increase dependability of supply. Since labor is the determining factor in both, operators look forward with exceeding interest to see what attitude union labor takes in the coming negotiations.

Two fearful explosions marked the year as particularly costly in life. On Feb. 8 a blast in the No. 1 mine of the Phelps Dodge Corporation at Dawson, N. M., killed 122. The other explosion killed 99 men in the Frontier No. 1 mine of the Kemmerer Coal Co. at Kemmerer, Wyo. Seldom has the West suffered so heavily.

The opening of the year was not particularly encouraging anywhere in the West or Southwest. Car supply in Utah and Wyoming ran only about 70 per cent but that was ample to enable the mines to produce all they could readily sell. Colorado trailed along about 15 per cent to the rear. In Kansas, with car supply at 40 per cent, lump sold for \$5.50, mine run, \$3.75, and screenings, \$2.50. These were circular prices, which the trade strove to maintain for a long time thereafter. Arkansas, with about 25 per cent of the rated allotment of cars, was not kicking for more, because, as usual, that state was having a hard time to

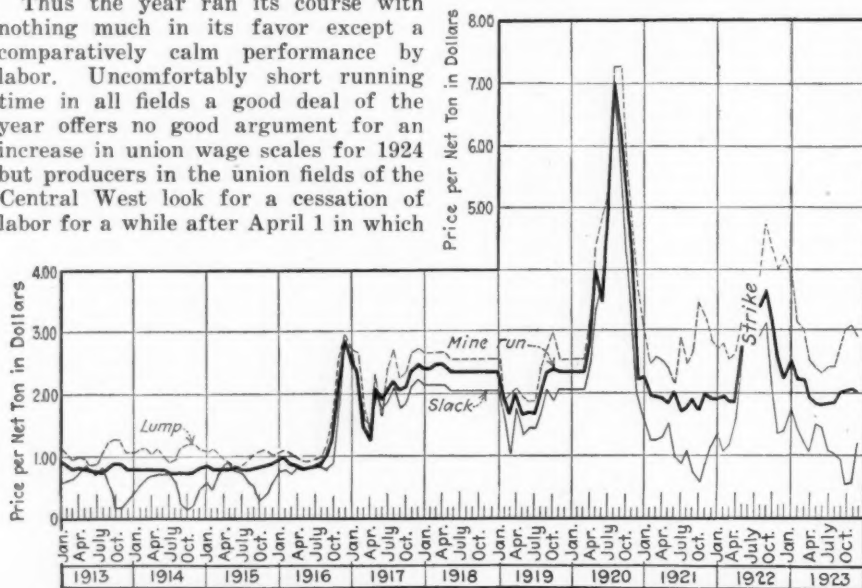
move what it produced at \$6@\$8 for lump, \$3.50@\$4.50 for mine-run, and \$2 for screenings.

As the winter advanced into spring the Far West continued to produce fairly well with running time better than 75 per cent. Utah and Colorado both dropped to little above 50 per cent, but regained a little with a rather raw March. Kansas and Oklahoma slid far below that. While the East, especially West Virginia and eastern Kentucky, was suffering keenly for want of cars, the West had all the cars it could use and plenty more. "No market," and nothing less, was the affliction. In Kansas City in early March the market was as full of holes as a Swiss cheese. Circulars were not changed, but undercutting was going on generally and became worse.

Late in March Kansas dropped lump from \$5.50 to \$4.50 in an effort to get business. The expedient helped only a little. Colorado shaded domestic a dollar to encourage spring buying, but with only modest results. A new low rate on the C. M. & St. P. and the Northwestern gave mountain states coal some encouragement in the Dakotas. Then came a little spell of cold weather all through the trans-Mississippi region and "no bills" in both Kansas and Colorado fields were hurriedly cleaned up before the weather again warmed and the summer began to stifle the trade.

In April shutdowns in Kansas became so numerous that Governor Jonathan Davis began his now famous official inquiry, at the instigation of union miners disgruntled by loss of working time, to determine whether the laws of supply and demand could be tinkered up so that the miners might work. He found they could not. The operators' main effort, failing to find a ready market, was to get a change of rates into the Missouri Valley region, either to give the Southwest a reduction or competing Illinois an increase. No adjustment has yet been made.

In the Rocky Mountains some raw weather in May helped the market and the usual periodic landslides choked off Routt County by stopping up a tunnel or two on the Moffatt road. Wyoming worked an average of approximately 55 per cent that month, Colorado 45 per cent and Utah a little less. Summer storage prices still were helpless to awaken the market. A slight decrease in intrastate freight rates on coal announced that month had the ef-



SPOT PRICES, F.O.B. MINES, ON THE ST. LOUIS MARKET OF COAL
FROM STANDARD FIELDS OF ILLINOIS

Spot Prices, F.o.b. Mines, of Bituminous Coal, Western Kentucky, 1923

AVERAGE QUOTATIONS ON THE LOUISVILLE AND CHICAGO MARKETS

	Lump	Mine-Run	Screenings
January.....	\$4.24	\$2.57	\$2.20
February.....	3.63	2.25	1.95
March.....	2.94	2.00	1.73
April.....	2.53	2.00	1.86
May.....	2.55	1.90	1.60
June.....	2.28	1.76	1.33
July.....	2.25	1.69	1.15
August.....	2.29	1.76	1.13
September.....	2.58	1.96	.89
October.....	2.54	1.76	.58
November.....	2.86	1.72	.63
December.....	2.96	1.72	1.14

Spot Prices, F.o.b. Mines, of Bituminous Coal, Standard, Illinois, 1923

ST. LOUIS (MO.) MARKET

	Lump	Mine-Run	Screenings
January.....	\$3.98	\$2.56	\$1.75
February.....	3.13	2.25	1.45
March.....	3.01	2.22	1.23
April.....	2.53	1.93	1.07
May.....	2.41	1.84	1.50
June.....	2.35	1.81	1.46
July.....	2.43	1.83	1.08
August.....	2.42	1.85	1.03
September.....	2.73	2.01	.93
October.....	3.02	2.06	.53
November.....	3.08	2.06	.55
December.....	2.92	2.00	1.20

fect of pulling prices down another 25c. or so, again without much market effect.

Utah's market picked up during June, thanks to real industrial activity in that state on the part of smelters and copper companies and the beet-sugar making campaign. Running time for the state climbed to about 60 per cent. Even domestic trade there picked up a little, but there was little lifting of prices. Steam coal moved on contracts at \$1.25@1.50. By July 1 Colorado prices had firmed up noticeably and the upward trend toward autumn business started. Good lump advanced 25c. as a starter, but this warning that summer storage prices were going off did not put much life into trading.

One of the noteworthy contributions to the summer's coal history was the campaign of public education which the Southwestern operators put on in their principal markets, such as Kansas City. In a long series of well-done advertisements, the producers laid the cards on the table so that the people might see something of what coal cost, why they should not wait until the dead of winter to buy and why they should give up belief in "coal baronism." It was a first-rate effort. Of course it did not cause an immediate and noteworthy strengthening of the market but some of those back of it felt that it established better feeling between the coal man and the public.

Another effort of importance—futile but interesting—was the attempt of the Kansas operators to get the union to agree upon a scale for mining machines. After much jockeying and many meetings of a joint subcommittee the two parties failed of agreement. The operators offered first a differential of 15c. below the hand scale of \$1.25. The miners would agree to nothing over 6c. The operators finally offered a compromise of 11c. This was refused, and the effort was abandoned. Today there is no machine scale in Kansas though there are machines at several mines where union domination is not complete.

On Aug. 1 prices in the mountain states began noticeably to stiffen, and a slight market pick-up appeared. Most domestics advanced 25c. Utah noticed a pick-up in Pacific Coast and Northwestern trade and domestic buying in Utah was fairly well started, but not in sufficient volume to exhaust the considerable stocks that retailers put in earlier in the summer. By the end of

August the whole West felt an improvement. Kansas and Colorado were getting three full days' running time each week and Utah was doing almost as well. This betterment continued through the middle of September, but turned again about Oct. 1, so that the production curve dipped once more and running time in all fields fell down below 50 per cent for awhile.

Late in October the curve rose noticeably so that both Kansas and Colorado worked more than 60 per cent

of the time and even Utah increased its output some. Then came the drop in December, when all fields, especially Utah, declined. Working time there was barely 50 per cent. Low production of domestic sizes all through the mountains at least had the virtue of stiffening up screenings. In Kansas and Oklahoma, with very low running time, coal of various sizes was piling up at the end of the year and Arkansas was about shut down. Thus ended an unprofitable year.

Northern West Virginia Set New Record For Production in 1923

Output, 27,024,050 Tons, Exceeds That of 1920 by 4,000,000 Tons—Financial Conditions Not So Rosy—Operators Discouraged—Yield of Sewickley Coal Growing

BY H. A. WILLIAMSON

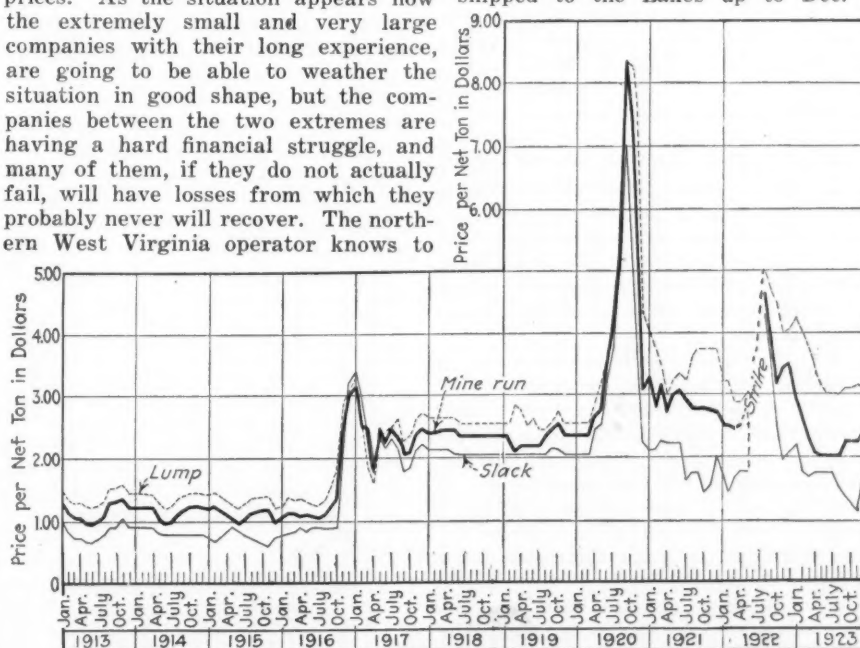
To Dec. 15, 1923, northern West Virginia, comprising about twelve and one-half counties, had shipped 27,024,050 tons of bituminous coal, the largest annual output in the history of the region, being over four million tons more than was produced in 1920. This large output, however, is not reflected by equally bright financial conditions. The price of coal steadily declined since the beginning of the year and by Dec. 15 the average price per ton probably was well below \$2—possibly around \$1.75—although accurate figures on this are not yet available if they ever will be.

This is the first year for a number of years that the operators appear actually discouraged. The smaller companies, with little or no overhead, are able to close down their operations and thus save themselves to a certain extent, but companies of any size are obliged to continue operations even though the coal is sold at ruinous prices. As the situation appears now the extremely small and very large companies with their long experience, are going to be able to weather the situation in good shape, but the companies between the two extremes are having a hard financial struggle, and many of them, if they do not actually fail, will have losses from which they probably never will recover. The northern West Virginia operator knows to

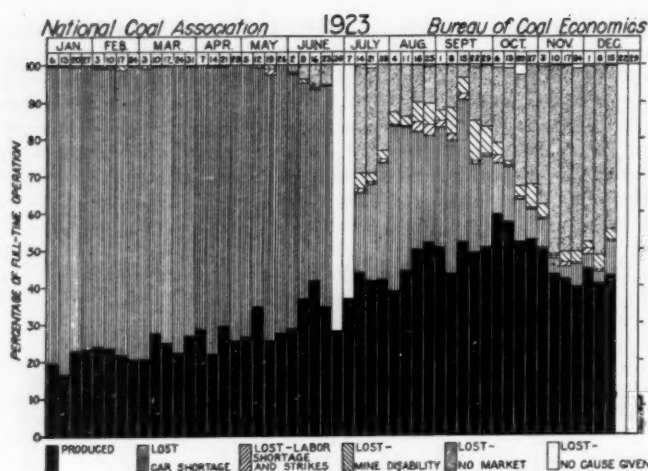
his sorrow that if the consumer is not getting cheap coal in 1923 it is certainly not the operator's fault.

One of the outstanding features of 1923 was the production of Sewickley coal in the Scott's Run district of Monongalia County. Practically the first Sewickley coal was mined from this district in 1916, when 19,041 was produced; in 1921 about one million tons was produced and to Dec. 15 in 1923 the total coal loaded from the Scott's Run district was 3,429,150 tons, of which it is estimated that approximately 2,750,000 tons was Sewickley.

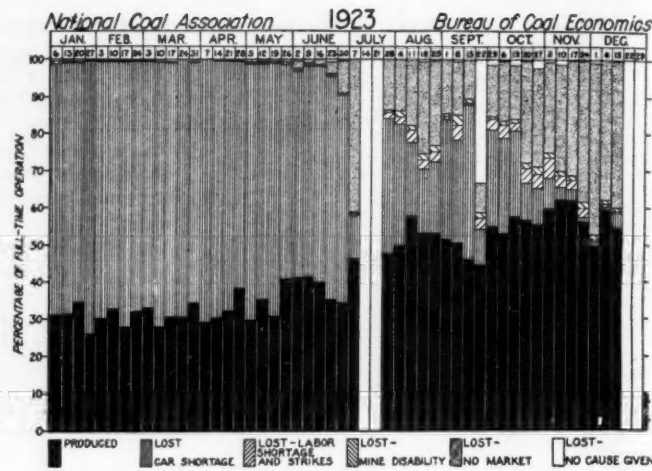
The Lake trade, generally conceded to be lost to northern West Virginia because of the differential between freight rates for Ohio and northern West Virginia, has been revived strongly this year but probably at the sacrifice of any possible profit and only because the shippers were willing to accept almost any price. The region shipped to the Lakes up to Dec. 15



SPOT PRICES, F.O.B. MINES, ON THE ST. LOUIS MARKET OF COAL FROM THE MT. OLIVE DISTRICT OF ILLINOIS



Kanawha District, W. Va.



Logan District, W. Va.

PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES

2,273,900 tons. If prices return to anything like "reasonable profit," however, there will be practically no Lake trade from this region. The freight differential again was increased by 10c. per ton in 1923. At the beginning of 1917 the differential was 25c. per ton and during that year it was increased to 40c.; now it is 50c. Normally nearly a third of our production should go to the Lake trade and probably would even at 25c. differential, but with 50c. it is impossible and this must be remedied or shipment of this percentage of the region's production must cease with much resultant idleness.

The first months of the year were marked by considerable nervousness on the part of both miners and operators as to the possibility of strikes during the year. All parties concerned were pretty well fed up on labor troubles but there was worry as to what outside influence might do. Nothing serious developed, however, and the old confidence that existed between miners and operators before the union entered the field may be re-established more strongly than ever if sinister outside influences can be held in check.

Naturally with so depressing a year new development has been at a standstill, yet trade in coal lands has been constantly going on and several rather large deals have been put through. While naturally it cannot be confirmed rumor has it that at least a major portion of the dealing is in the interest of one or two railroad organizations intent on securing reserves of coal for future development.

All the usual evils have been in evidence during the year—fear of strikes, assigned cars, car distribution, increase in freight differentials, investigating committees, Coal Commission, representatives of the Department of Justice, federal taxes, state sales taxes and so on. The miner is worried because, except for a few fortunate mines having contracts, work is very slack; the operator is worried because of all the things enumerated above and a lot of others, 1924 is coming in with the region in a gloomy and downcast condition.

Restricted Demand for Commercial Coal Marked Year in Alabama Market

Consumers Without Contracts Kept but Little Ahead of Actual Requirements—Making of Furnace Coke Absorbs Increased Tonnage—Union Influence Fades Out

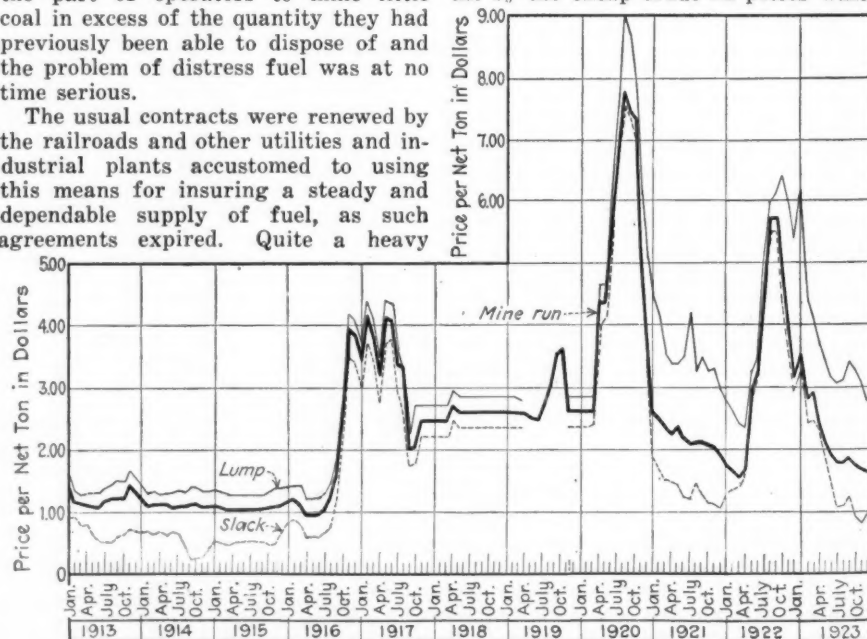
BY H. B. McLAURINE

The Birmingham market was featured by a very restricted demand for commercial coal throughout the year. Apparently assured that the mines would produce an adequate and uninterrupted supply of fuel, non-contract consumers adopted and maintained a policy of providing for their needs only a short while in advance of actual consumption, and no interest was manifested in the accumulation of stocks, necessitating uninterrupted efforts on the part of brokers and sales organizations to dispose of the output in excess of contract obligations assumed by the mines. However, there was a disposition on the part of operators to mine little coal in excess of the quantity they had previously been able to dispose of and the problem of distress fuel was at no time serious.

The usual contracts were renewed by the railroads and other utilities and industrial plants accustomed to using this means for insuring a steady and dependable supply of fuel, as such agreements expired. Quite a heavy

tonnage over and above the previous year was absorbed in the manufacture of furnace coke, as an unusually active iron market kept in operation beyond the first half of the year an abnormal number of stacks. The demand for foundry coke went hand in hand with the active iron market and the commercial output was heavy for a like period. Quotations ranging from \$8 to \$9 per ton declined to \$6.50 to \$7 f.o.b. ovens when the dull period was reached.

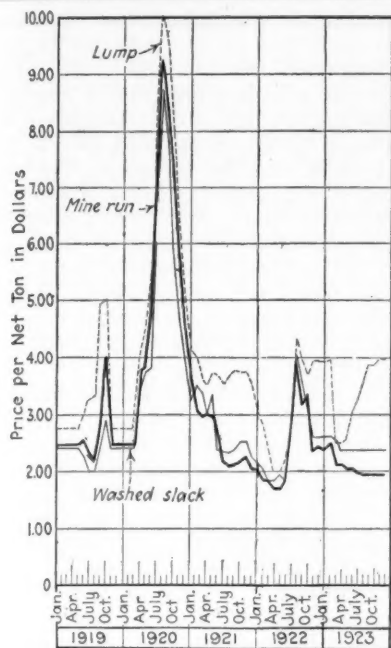
The development of bunker business through the Southern ports made no material progress during the year. The trade in this direction was hard hit by the cheap crude-oil prices which



SPOT PRICES, F.O.B. MINES, ON COLUMBUS AND CINCINNATI MARKETS OF COAL FROM THE KANAWHA FIELD

Range of Prices on Alabama Coal During 1923

	January			April			July			October to December		
	Mine-Run	Washed	Lump	Mine-Run	Washed	Lump	Mine-Run	Washed	Lump	Mine-Run	Washed	Lump
Big Seam...	2.25@2.50	2.50@2.75	3.45@4.45	2.00@2.50	2.25@2.50	2.50	1.85@2.25	2.25@2.50	3.15@3.40	1.75@2.15	2.25@2.50	3.75@4.00
Carbon Hill...	2.25@2.75	2.50@3.00	4.45	2.25@2.50	2.50	2.75	1.85@2.50	2.50@2.75	3.40	1.75@2.50	2.50	4.00@4.25
Cahaba...	3.00@3.25	3.00@3.50	5.20	3.00@3.25	3.25	3.75@4.00	2.75@3.00	3.00@3.25	4.35@5.60	2.25@2.50	2.25@2.75	5.00@5.50
Black Creek...	3.00@3.25	3.00@3.50	5.20	3.00@3.25	3.25@3.50	3.75@4.25	3.00	3.00@3.50	4.35@4.85	2.75@2.85	3.00@3.30	5.00@5.50
Pratt...	2.75@3.00		4.55@5.00	2.75@3.00		3.00@3.25	2.75		3.65@3.90	2.50		4.25@4.50
Corona...	2.75@3.00	3.00@3.75	6.00	3.00	3.25	5.00@5.25	2.75@3.00	3.25	5.60@5.90	2.50	2.85	6.50@7.00



SPOT PRICES F.O.B. MINES ON THE BIRMINGHAM MARKET OF COAL FROM ALABAMA FIELDS

prevailed at Gulf ports, many thousands of tons of bunker fuel being displaced by the substitution of oil-burning equipment in vessels with home bases at New Orleans, Mobile and Pensacola, as well as numerous craft which called at these points formerly for fuel-coal supply. Only a limited amount of coal was exported.

Hydro-electricity made further serious inroads into the domain of fuel coal at many interior points, municipal electric plants with steam-driven equipment being taken over by the Alabama Power Co., as well as numerous industrial plants being equipped with hydro-electric power. Several large pipe plants in the Birmingham district installed equipment for burning by-product gas instead of coal. These several factors vitally affected the marketing of Alabama coal.

The domestic demand was good with the exception of the last quarter, when unseasonable weather and consequent inability of retailers to dispose of their stock accumulations brought about a dull condition in the trade. During the first nine months of the year domestic coal moved in a most satisfactory manner. Contracts were more extensively entered into during April, the beginning of the coal year, than had been the case for several seasons past, and together with the spot demand which prevailed during this period afforded ready disposition for mine output.

Quotations on steam coal showed only slight decreases at the close of the year over the schedules in effect in

January. Domestic grades took on a gradual increase from the base prices effective April 1, as was customary, the quotations in effect in December being slightly higher in some instances and lower on other grades than ruling prices when the calendar year began.

It is estimated from figures now available that production for 1923 will approximate 19,000,000 net tons, or from one-half to three-quarters million tons in excess of the previous year. This increase probably should all be credited to furnace company mines, little of which found its way into commercial channels.

Several million dollars was involved in the organization of new mining enterprises and increases in capital stocks of going concerns for improvements and modernization of plants and equipment. Mergers involving a capitalization of perhaps eight to ten million were consummated, the DeBardeleben Coal Corporation taking over the properties of the Empire Coal Co., DeBardeleben Coal Co. and Corona Coal Co., and the Pratt Coal Corporation acquiring the holdings of the Kershaw Mining Co., Dora Fuel Co. and extensively developed and virgin coal lands of the Bryan Coal Corporation in Walker and Jefferson counties.

Operations at Alabama mines were not seriously hindered by car shortage, although some loss of time was occasioned in the first quarter on account of lack of equipment, due to some extent to faulty distribution.

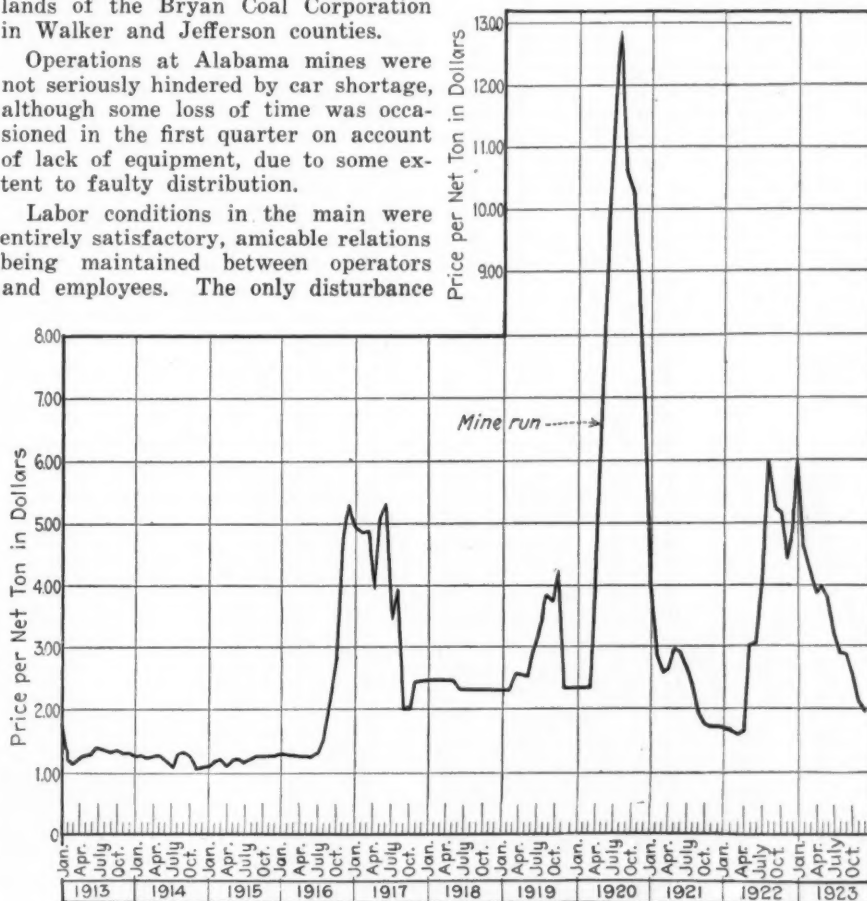
Labor conditions in the main were entirely satisfactory, amicable relations being maintained between operators and employees. The only disturbance

of any consequence was the strike of union miners at the Beltona Mine of the American Mining Co., when officials declined to renew an expiring contract with the union. The places of these men were quickly filled and little tonnage was lost. The year marked the passing of the influence of the United Mine Workers in Alabama, the autonomy of District 20 being abrogated by the national organization after a struggle since about 1893 to establish permanent and effective domination of mining labor in this district, the open-shop being thoroughly and irrevocably established as the policy of Alabama operators.

Spot Prices, F.o.b. Mines, of Bituminous Coal, Mt. Olive District, 1923

ST. LOUIS (MO.) MARKET

	Lump	Mine-Run	Screenings
January.....	\$4.25	\$2.90	\$2.20
February.....	4.00	2.57	1.75
March.....	3.75	2.29	1.69
April.....	3.35	2.05	1.73
May.....	3.16	2.00	1.75
June.....	3.00	2.00	1.75
July.....	3.00	2.00	1.75
August.....	3.00	2.00	1.50
September.....	3.10	2.25	1.36
October.....	3.10	2.25	1.25
November.....	3.13	2.25	1.13
December.....	3.10	2.40	1.63



SPOT PRICES, F.O.B. MINES, ON BOSTON MARKET OF MINE-RUN COAL FROM SMOKELESS FIELDS OF WEST VIRGINIA

FOREIGN MARKETS

Reviews by Our Correspondents in London, Paris and Berlin, Recording Economic Progress in Europe as Reflected in the Basic Industries of Coal and Coke

British Trade Unsettled at Year's End

Unusual Activity Throughout First Half of Year—Decline Began in June—Production and Shipments Still Fairly High—Lighter Demand Causes Rapid Fall in Prices

By C. H. S. TUPHOLME

Though the coal industry throughout Great Britain may be said to have improved gradually during the past two months, it is actually in a very unsettled state. The year 1923 opened full of promise for both the Welsh and the north of England coal fields; the demand from Europe, especially Germany, and also from America was considerable, and for some time such rapid recovery was made that even pre-war exports were exceeded. This unusual activity lasted nearly half the year, but since June a gradual decline has set in, and though both production and shipments are still at a fairly high level, a shortened demand has caused a rapid fall in prices.

An instance of this fall may be taken from the Welsh steam coal market. In June the operators were able to obtain any figure up to 42s. 6d. per ton for best Admiralty large steam coals. As a result the industry was making good profits, and the miners' wages were raised from the minimum of 28 per cent above the 1915 standard, where they had been almost stationary for nearly a year and a half, to 41.47 over the standard. At the present time Admiralty large steam does not command above 27s. 6d. per ton in the open market. This decline has meant that while some pits are still able to show a narrow margin of profit, the majority are operating at a loss.

The output over the second half of the year, with the exception of one week, has been consistently over the 5,000,000-ton mark. South Wales alone is still producing over 1,000,000 tons per week and is exporting 600,000 tons, so it cannot be said that there is any fault either with the volume of output or of trade. In spite of this the operators are confronted by a serious problem. Production, especially at the newer and more modern shafts, is very high. Thus, as it is essential to obtain heavy outputs so as to obtain economic operating costs, there is a continual striving after higher and higher output, and this rivalry between pits grows keener every day.

Buyers abroad appreciate this position and quite naturally take full advantage of it. Thus European customers especially have suspended their custom of placing contracts for de-

livery over long periods, now basing their orders on the fact that the colliery operators must accept current business at low figures so as to keep the pits going and so endeavor to avoid the additional costs incident to a stoppage.

This probably is the chief factor in the present unsettled position and accounts for the drop in the price of Admiralty large steam on the Welsh market from 42s. 6d. to 27s. 6d. in the space of a few months. Naturally there is considerable difference in the various classes of coals marketed in South Wales, and while only the figures for Admiralty large steam have been quoted, identically the same argument applies to all other kinds.

The coal industry was decontrolled in March, 1921, and from that time to the late summer of 1922 the operators had to bear exceptionally heavy costs, arising not only from a three months' strike but also on account of the rapid decline in selling prices which followed.

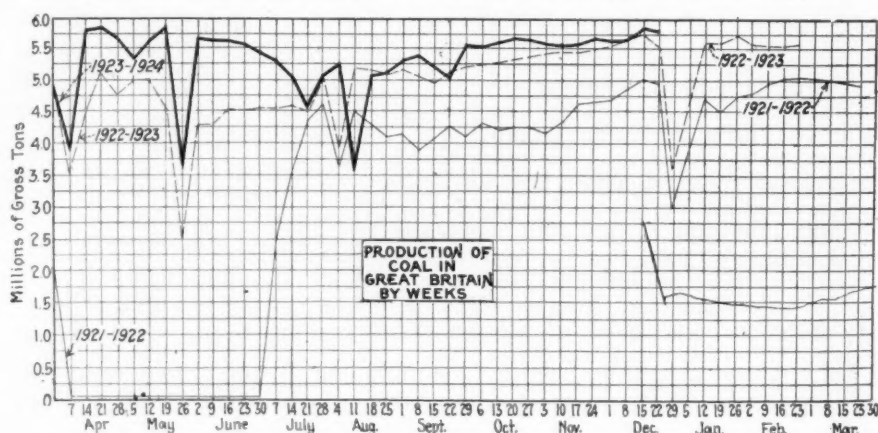
Fortunately for many pits, which would otherwise have had to close down, a demand for coal arose in the United States because of the strike there, and also on the Continent on account of the suspension of operations in the Ruhr. These two factors so changed the outlook of the entire British coal trade that the few months' comparative prosperity enabled the pits to recover. Unfortunately, this prosperity was too short-lived to enable the collieries to collect any substantial reserves. There is no doubt that the next three months is to be a crucial period for the entire trade.

This year has seen the culminating point of a rather remarkable recovery from the disaster of the national strike. Nineteen hundred thirteen was a record year for the industry; the output in that year in South Wales was 56,830,000 tons. In 1920 the output was 46,250,000 tons; in 1921 (the year of the national strike) it was only 30,570,000; 1922 saw production rise to 50,325,000 tons. This year, up to the end of the September quarter, the output of the South Wales pits amounted to 41,000,000 tons, which is at the rate of 55,000,000 for the year, or nearly up to the pre-war record. The total output of the British pits this year up to and including the week ending Dec. 1 is 247,577,000 tons, which is at the rate of over 260,000,000 for the whole year—quite a creditable performance.

This total it must be remembered is being produced in a seven-hour day against eight hours before the war, and by men fluctuating in number between 1,160,000 and 1,180,000. In the Welsh coal fields alone 243,000 men are employed against 233,000 before the war. The wages of these men are stabilized by the Agreement of 1915 at a minimum of 60 per cent above the pre-war level. It follows, therefore, that the Welsh operators must get at least 60 per cent above pre-war prices; otherwise their industry is in danger.

Realizing that new pits must be sunk to replace those worked out, many of the leading concerns during the prosperous period at the beginning of this year began operations on new shafts in unworked areas. These pits must be worked for some time before they can be regarded as paying propositions, and the burden of the operators is thereby increased. Costs have gone up on these new pits and suitable labor has not been easy to find.

Many of the new shafts have been sunk in virgin districts far removed from the centers of labor supply. In



addition new railway lines have had to be laid to connect with the shipping ports. This problem of suitable labor supply is dependent to a large extent upon the provision of adequate housing, which now costs about three times the outlay of pre-war days.

A source of concern to British coal-mine owners is the argument employed by former customers in Europe that they can obtain French, Belgian and German coal at lower prices than the British product. They also expect cheaper American coal. Present conditions in Germany, in the opinion of British operators, do not altogether warrant this assertion. In addition, when the French, Belgian and German mining industries really get on their feet most of their production will be required for domestic purposes. The British operators argue that as far as American competition is concerned, the recent settlement in the anthracite field

is likely to add \$1 per ton to the working costs of the bituminous as well as the anthracite mines. In this way the arguments of the European customers are met, though there is no doubt that the attitude of Continental buyers is giving considerable concern.

Another factor in the present depression is the falling off in British naval and mercantile contracts. Until quite recently the British Admiralty required 1,500,000 tons of Welsh coal annually, while another 2,000,000 went to the merchant ships. Naval activities have been reduced by the Washington agreement and oil fuel has been largely substituted for coal, so that much of this market has been lost.

The one bright spot in the coal-mining industry is anthracite. Here production at present is so limited that there is a continual market for the Welsh product at prices well above other classes of coal.

deliveries, France had to find other sources of supply. But hurried purchases made in Great Britain and America turned out unsatisfactorily. American coals imported during the past year, however, were far more satisfactory than during 1919-1920. A revival of imports from America may be well expected, and would be an accomplished fact if American exporters would consent to reduce their prices, particularly as far as coking coals are concerned.

Whether the loading was unsatisfactory or the journey too long, American coke arrived in France in very poor condition—either pulverized or in small lumps unfit for blast furnaces. But besides being of poor quality, this fuel also was very costly, the lowest price being \$16.50 c.i.f. and the highest \$17.75. If the consumption of American coke in France appears unfeasible, it might be advantageous to use American coking smalls, which have proved satisfactory. Their price, however, is still too high for large purchases of them, except in time of absolute need.

During the first ten months of 1923, France produced 31,724,088 tons of coal and lignite as against 26,294,845 tons during the corresponding period of 1922. Production in 1913 was 40,922,000 tons, or a monthly average of 3,410,000 tons. In the total for 1923 the Lorraine production of 435,483 tons, is included. For an exact comparison of the two periods it will be necessary to add this tonnage to the amount of the deficiency, indicating that production has been about 674,000 tons lower.

In 1913 the Nord and Pas-de-Calais produced 27,520,000 tons of coal, or a monthly average of 2,293,000 tons.

During the first ten months of 1923, the total production for the Nord and Pas-de-Calais was 17,096,111 tons, or 1,424,675 tons monthly, compared with a monthly average of 1,280,000 tons in 1922, an increase of 144,678 tons.

During the first ten months of 1923 the production of coke was 1,613,000 tons as against 808,000 tons for the corresponding period of 1922, an increase of 805,000 tons. In 1913 the French

Coke Situation Is Pivotal Point Of French Fuel Problem

Cessation of Reparation Deliveries with Ruhr Occupation Made Resort
to Other Sources Necessary—Prices High and Quality Poor
—Production Grows—Wages Advance

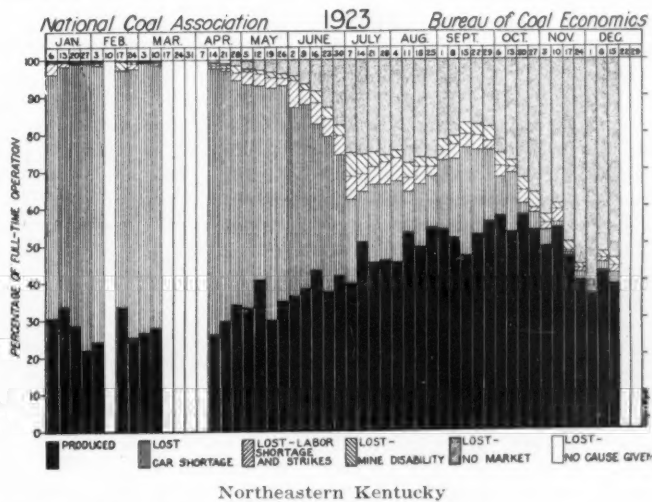
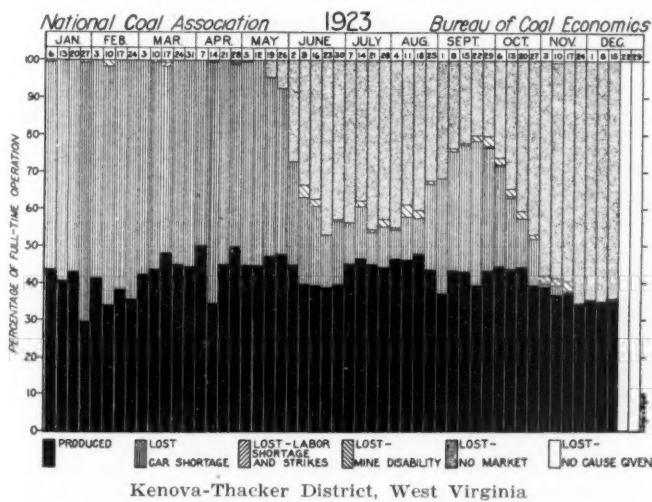
BY VICTOR TRUANT

We explained in our last annual review how, by the terms of the Versailles treaty, Germany was obligated to deliver a certain amount of fuels to indemnify France for the loss inflicted by the systematic destruction of her principal mines during the occupation. German deliveries in 1923 should have been 14,000,000 to 15,000,000 tons of crude coal, or its equivalent in coal, coke and patent fuel. Actual deliveries for the first ten months of 1923 were 1,234,390 tons of coal, 1,409,480 tons of coke and 92,860 tons of briquets, a total of 2,736,730 tons of fuels, or giving the equivalent of the coke tonnage in crude coal, 3,089,100 tons. Therefore the shortage of indemnity deliveries

amounts to between 11,000,000 and 12,000,000 tons.

The dearth of coke has been a serious impediment to French metallurgy; the situation during the first six months of the year had to be remedied by the purchase of coal in Great Britain, America, Holland or any place where coal and coke could be found. Unable to do without British fuels, French consumers had to pay extremely high rates, and found British cokes far from satisfactory. Even so they were more suitable than some of the American cokes, but there was no connection between price and quality.

When with the beginning of the occupation of the Ruhr Germany ceased



PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES

mines were producing around 2,635,000 tons of coke, including 2,445,000 tons for the Nord and Pas-de-Calais, a monthly average respectively of 220,000 and 204,000 tons. Production in the northern coal fields during the first ten months of 1923, was about 1,045,000 tons and the output is increasing every day, especially in the Nord Department. The independent cokeries have produced an average of 117,000 tons a month.

Production of patent fuel for the first ten months of 1923 was 2,536,200 tons of briquets and ovoids against 2,271,000 tons in the corresponding months of 1922, an increase of 265,000 tons. In 1923 the Nord and Pas-de-Calais mines produced in ten months about 1,290,000 tons and in 1913 1,802,000 tons, or 150,000 tons a month.

France imported 21,620,509 tons of coal during the first ten months of 1923, as compared with 18,192,441 tons for the corresponding period of 1922. The 1913 imports for the whole year were 18,693,000 tons, or a monthly average of about 1,558,000 tons.

Imports of coke for the first ten months of the year were 2,839,549 tons against 4,162,280 tons in 1922. Comparison of these figures shows the deficiency of supply, for which Germany is responsible; in fact, reparation deliveries up to Oct. 31 were only 1,476,427 tons, against 3,522,442 tons for the past year. Total imports in 1913 were 3,071,000 tons, or 256,000 tons of coke per month.

During the first ten months of 1923 Great Britain supplied France with 14,904,010 tons of coal and 358,983 tons of coke; shipments from the United States totaled 620,128 tons of coal and 168,856 tons of coke.

French occupation of the Ruhr began Jan. 11. Soon thereafter the Germans voluntarily cut down reparation deliveries; from Jan. 20 on France received only insignificant tonnages. France immediately bought coal in Great Britain and contracts were placed with American firms. British shipments of coke were important during the months of February, March and April. American coke was received mainly in May (76 696 tons), June (33,103 tons), and July (44 044 tons). Since July imports of British and American coals have been very small.

Imports of patent fuel for the first ten months of 1923 were 624,541 tons, as compared with 1,048,711 tons during the corresponding period of 1922. In 1913 1,086,000 tons was imported, or a monthly average of 90,000 tons.

France was actuated to exporting coal through her proximity to Belgium, some of her collieries being nearer to part of the Belgian consumption centers than some of their own mines. France also exports coal to Switzerland and Italy, two countries very poor in coal supplies.

During the first ten months of 1923 coal exports amounted to 1,840,474 tons, including 941,192 tons to Belgium (Belgian exports to France in the same period were 1,895,338 tons); 326,279

tons to Switzerland; 93,268 tons to Italy; 213,721 tons to the Saar during the strike and 55,008 tons to Germany. Exports for the corresponding period in 1922 were 1,551,726 tons, or 200,000 tons below the 1923 level. The average of exports for 1913 was 109,000 tons a month.

Coke exports from January to October, 1923, were 385,671 tons, including 221,356 tons to Italy, 114,567 tons to Switzerland. Exports during the first ten months of 1922 were at about the same level, the monthly average in 1913 being 19,250 tons.

Exports of patent fuel were about 200,000 tons for the first ten months of the year just past. Switzerland was supplied with 130,000 tons. During the corresponding period in 1922 patent-fuel exports amounted to 80,000 tons. In 1913 the monthly exported tonnage was 16,000 tons.

Apparent consumption of coal in France—that is, production plus imports less exports—was lowest in February, when it amounted to 3,062,360 tons, and was highest in June, when it was 5,657,634 tons. The consumption by months, in tons, was:

January.....	4,746,376	June.....	5,657,634
February.....	3,062,360	July.....	5,510,471
March.....	4,732,829	August.....	5,458,460
April.....	4,829,505	September.....	5,660,812
May.....	5,090,535	October.....	5,502,760

The prices generally applied on Oct. 1, 1922, were maintained in January, 1923. At that time prices changed according to the region to which coal was to be delivered. In the inland zone surrounding the coal field, prices were higher. In the Paris area, where British and Belgian producers compete, but with rather heavy transportation charges, prices were lower than in the local zone; in the so-called "British, Saar and Belgian zones"—that is in the region where imported coals are better situated as far as transportation is concerned than the Nord and Pas-de-Calais products—the latter must evidently get the benefit of lower pithead prices; and in the district outside of the British, Saar and Belgian zones, where

the products of other French and foreign coal fields can be found, prices were 1 fr. higher.

The Nord and Pas-de-Calais companies on Feb. 17, 1923, granted their employees wage increases of 3.25 fr. a day for adults, to be divided as follows: 2 fr. dating from Feb. 1 and 1.25 fr. dating from April 1. While the index of living remained unchanged, the salaries, thanks to these various increases, corresponded as of Feb. 1 to the index of the last three months of 1921.

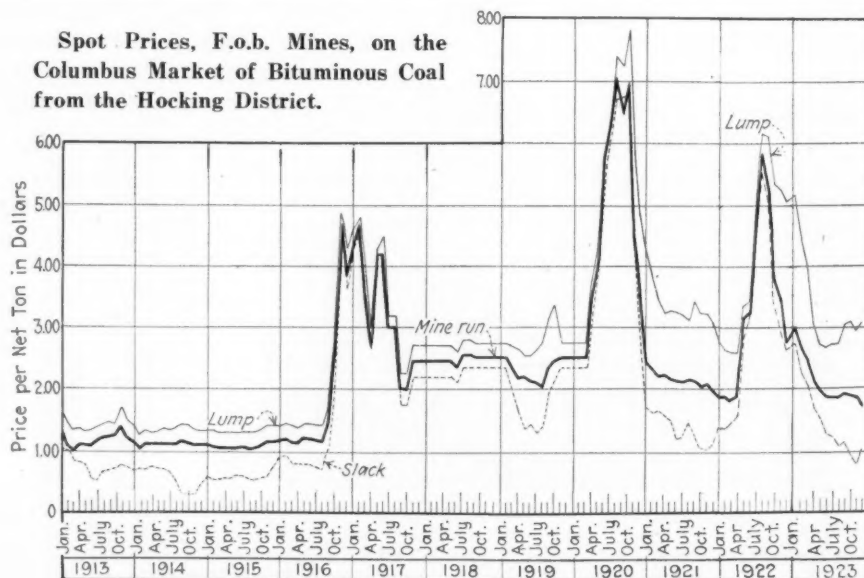
As soon as this decision was taken, selling prices were revised. Beginning April 1 prices of sized products were raised from 13 to 26 fr. per ton, up to Sept. 30. Briquets and ovoids also were raised 5 to 10 fr. a ton, but industrial coal and metallurgical coke prices were unchanged. On Oct. 1 these prices were maintained and quotations would still be on the same level had not the companies been obligated to grant further wage increases at the beginning of November, varying from 1 to 3 fr. and as much as 5 fr., which caused an increase of 5 fr. in industrial coals, 10 fr. on sized products except beans, which was raised only 5 fr.; 5 fr. on ovoids and 10 fr. on large coke.

New rates also have been applied in the other coal basin, following the example of the northern collieries, and on a similar basis.

Summing up, as the reparations problem has not yet been solved, we cannot expect 1924 to be an era of industrial prosperity, though there is not much probability of a shortage of fuel. Nevertheless unless the Ruhr agreements fully give what France has a right to expect, the present year will not be a period of abundant coal. The main point lies in the amelioration of the coke situation, but from the present outlook, it is extremely unlikely that there will be a repetition of the precarious condition that prevailed during the past year.

Prices, except for coke, are generally expected to be higher in 1924.

Spot Prices, F.o.b. Mines, on the Columbus Market of Bituminous Coal from the Hocking District.



German Coal Industry Seeks Way Out of Debris of Ruhr Blockade

Buried in Most Momentous Situation Ever Evoked by Coal Mining —
Fear Felt of Probable Partition of Ruhr and Rhineland —
Await Process of Deflation

By H. O. HERZOG
Berlin, Germany

The reviewer of the German coal situation in 1923 is greatly handicapped by lack of authentic data. Official information ceased to be compiled at the beginning of the Ruhr occupation for all of Germany. The sparse figures given out cannot be regarded as reliable, as they have been devoted to substantiate arguments and influence public opinion. In surveying the situation estimates have to be substituted.

The coal situation of 1923 was held completely under the sway of the Ruhr occupation. The latter situation came about, it will be remembered, because deliveries of fuel for reparations constantly fell short of the stipulated quantities and were deficient in quality. This at least is the official explanation, which, by the way, is not accepted in Germany, where deeper designs of the occupying powers are commonly suspected. The shortage was stated by the German side to be about 10 per cent, but it really was somewhat higher. Anyway, experience since then has proved beyond doubt that the quantity of fuel by which Germany was in default was insignificant in relation both to total output and consumption and could have played no part of any importance whatsoever with regard to German needs. The sinister consequences of the Ruhr occupation to the German state are now common property. This is no doubt the most momentous issue in history which coal has evoked.

After the detachment of Upper Silesia and the Sarre district but prior

to the occupation of the Ruhr, the remaining fields' contribution to the total production was as follows:

	Per Cent
Ruhr.....	79.0
Left bank of Rhine.....	5.2
Upper Silesia.....	7.8
Lower Silesia.....	4.4
Saxony.....	3.3
Other parts.....	0.3

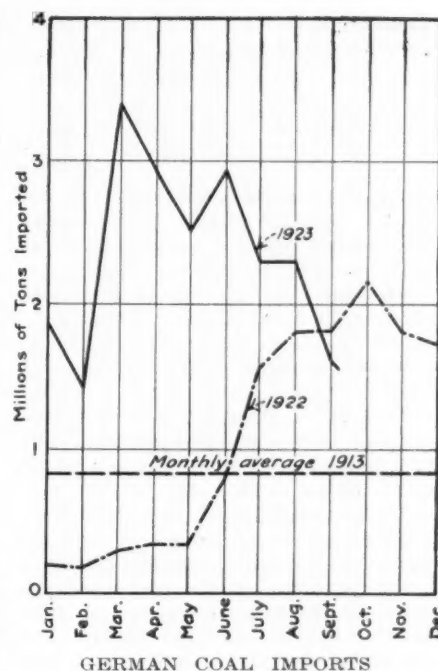
During the first months of the occupation the Ruhr mines continued operations at an undiminished rate, hopeful of an early settlement and trusting that the Franco-Belgian engineering mission would not be able to remove the fuel produced. When these hopes failed to materialize operations were restricted to such quantities as could be disposed of immediately. This strategy was maintained until traffic came to an almost complete standstill, all available storing space occupied.

Beginning in April restriction was placed on extraction and coke production, which in June resulted in a nearly complete shutdown of operations. Only the mines under contract to Holland and Switzerland and engaged in reparations supply to Italy continued at work, hampered however, by transportation difficulties. Production of by-products was continued at a reduced rate. Still the situation did not become precarious until the metallurgical works were deprived of their supply of fuel. The growing unemployment resulting therefrom, which spread over nearly all lines of industry, together with the enormous strain it caused upon the state finances, was responsible for the ultimate collapse of the passive resistance.

RUHR OUTPUT DROPS 90 PER CENT

The output of the Ruhr in 1923, which in January was still 100 per cent, or even more, of the 1922 average, dropped step by step to about 10 per cent at the end of the year. The average was in the neighborhood of 30 per cent. The Ruhr mines outside of the occupied zone produced about 6,000,000 tons of coal and 1,500,000 tons of coke. The total Ruhr production in 1923 may be estimated at 36,000,000 tons instead of 93,788,000 tons in 1922 and 91,006,000 tons in 1921. The shortage compared with last year is about 58,000,000 tons.

In the other districts operations were carried on through the whole year, disturbed, however, by frequent strikes, passive resistance of the workers and impaired by a generally reduced rate of efficiency. The 36,177,000 tons produced in 1922 outside of the Westphalian basin dropped in 1923, by a safe



estimate, to 30,000,000 tons. If these estimates are accepted, the total German production of bituminous coal in 1923 compared with previous years was as follows:

	Metric Tons
1913.....	190,109,000
1921.....	136,227,000
1922.....	129,965,000
1923.....	66,000,000

It is quite impossible to gain any insight on production of coke. In 1913 it was 36,630,000 tons; in 1921, 27,913,000 tons, and in 1922, 29,664,000 tons. In 1923 the production could hardly have exceeded 13,000,000 tons, of which about 5,000,000 tons was contributed by the Ruhr.

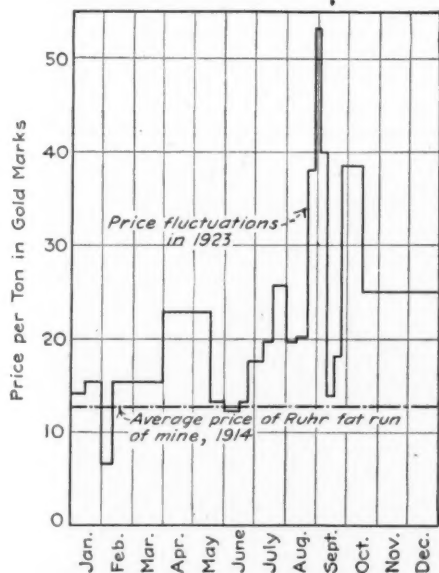
BROWN COAL OUTPUT ALSO SAGS

Brown coal production increased greatly during the first months of the Ruhr occupation, but the declining market in the second half of the year caused a marked reduction of output. The Rhenish brown-coal basin, which was drawn into the vortex of the Ruhr blockade, deprived of part of its market, suffered from a regular glut. All in all brown coal production in 1923 was at least 10 per cent behind the 137,207,000 tons of 1922. The estimated production of 120,000,000 tons of brown coal is equivalent to about 28,000,000 tons of bituminous coal.

In view of the possibility of Ruhr and Rhineland becoming detached from Germany as a separate state, it is of interest to ascertain the distribution of coal reserves which would result therefrom. The following figures present a survey in this respect:

	Metric Tons
Germany's reserves in 1913.....	410,000
Lost to Poland.....	146,000
Lost to France (Lorraine).....	800
Sarre district.....	15,700
Total.....	162,500
Remaining to Germany.....	247,500

The remaining reserves are situated as follows:



MOVEMENT OF COAL PRICES COMPUTED IN GOLD MARKS (PRE-WAR PARITY)

Occupied Rhineland.....	10,500
Occupied Ruhr.....	195,400
	205,900
Unoccupied Ruhr.....	18,200
All other interior parts.....	23,400
	41,600

In the event of such partition the German interior would retain only about 10 per cent of the coal reserves within German frontiers in 1913.

Coal prices in 1923 showed an almost unbroken upward flight. They were changed in ever shortening intervals, at times even weekly. Toward the end of the year they were placed on a gold basis, at which after a few violent convulsions, they remained stable. The paper mark movement of prices showed strong fluctuations. At first it followed the vagaries of the mark rate in the proximity of pre-war prices, always, however, with a marked tendency to rise beyond. In the course of the year this tendency became so pronounced that the coal tax had at first to be reduced to three-quarter and later on was abolished entirely. The price movement is illustrated by the accompanying diagram which compares the prices for Ruhr fat run-of-mine, in 1914 with 1923. The prices have all been reduced to their pre-war gold equivalent at the mark rate prevailing when the prices came into force. The wild jumps, even of the gold equivalent of prices, makes this an interesting record.

PRICE CONTROL BREAKS DOWN

The break-down of the control of coal prices carefully preserved during post-war years was caused by a number of circumstances, foremost of which were the growing dependency on imports, the rapid mark depreciation, the greatly increased price level of mining material and, lastly, the labor situation. At the end of 1923 prices were double the pre-war level.

Most remarkable among the several surprises which the Ruhr occupancy afforded was the fact that an actual shortage of coal in the German interior did not result. The visible supply remained at all stages behind the commonly assumed average of con-

sumption. Still the scarcity, such as there was, was kept within moderate limits. Temporary shortages occurred at various times, confined, however, to certain locations and caused rather by deficiencies of transportation than by lack of supply.

The explanation is to be found in the fact, revealed soon after the beginning of the Ruhr blockade, that the stocks of fuel on hand far exceeded all estimates. Large quantities of fuel had been rushed from the Ruhr to the interior as long as the frontier was open. While these shipments materially increased the stocks in hand, they were of course insufficient to balance the shortage of fresh supply during five or six months.

SUPPLY AND DEMAND RULE AGAIN

When the stocks of fuel were exhausted and the market was closely approaching a hand-to-mouth condition, the decline of industrial activity and stunted consumption caused by the enormous rise of prices quickly restored the equilibrium of supply and demand. Consumption dropped to a level without precedent. Whereas during the first months of the year all mining districts of the interior, working under high pressure, could not cope with the demand, toward the middle of the year a state closely resembling overproduction was reached. The decline became noticeable as early as April. In the subsequent months only coke and brown coal briquets continued in brisk demand. In July, however, a complete calm settled upon the market, lasting without a break until the end of the year.

Imports of coal reflect the decline of consumption but to some extent only. During the first months of the year all efforts were made to obtain as much foreign coal as possible and as finances permitted. Contracts were closed for months ahead. In May, buying on a large scale was stopped and efforts were made to cancel or reduce running contracts. The sharp drop of the market is evidenced in the curve of imports in a much slower decline. Besides, the import continued at a certain

extent even in the face of a pronounced slump on the market of domestic coal, because the latter could not substitute Ruhr coal quality.

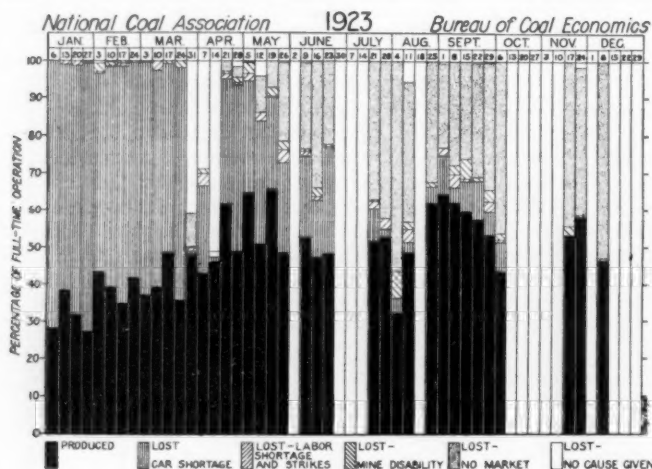
The following figures show coal imports from January to September, 1923, the latter month being the last for which foreign trade returns had become available at the end of the year. The corresponding figures of 1922 are added for comparison. The period mentioned coincides with the duration of the Ruhr occupancy, and therefore its effect on importation is reflected.

GERMAN IMPORTS OF COAL, JANUARY-SEPTEMBER, 1923 AND 1922
(In metric tons)

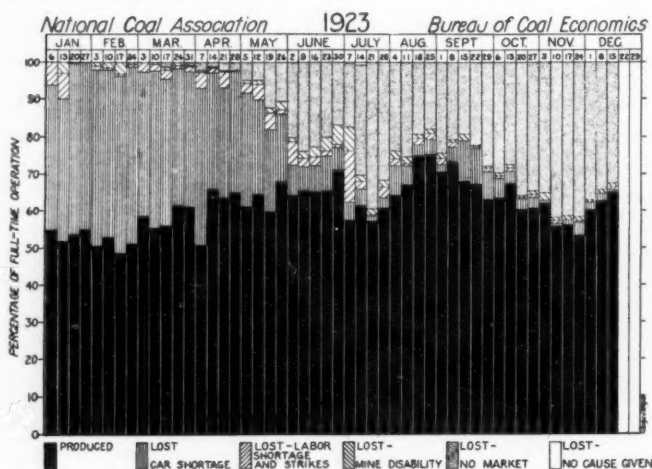
	1923	1922
January.....	1,870,127	194,078
February.....	1,421,832	162,735
March.....	3,397,658	284,979
April.....	2,920,097	336,921
May.....	2,495,649	333,704
June.....	2,977,179	789,799
July.....	2,286,010	1,542,223
August.....	2,280,952	1,721,173
September.....	1,601,913	1,815,036
Total.....	20,311,996	7,180,647

The zenith of imports was reached in March. Comparing the figures of 1923 and 1922 it would seem that about 13,000,000 tons represents the total import increment due to the Ruhr occupancy. There is, however, a doubtful element in this conclusion. It leaves out of consideration the fact that in the six months preceding the Ruhr occupation imports had reached an average of 1,750,000 tons per month. The monthly average of January-September, 1923, was 2,250,000 tons. On the basis of the former the increase of the latter would appear to be only 500,000 tons per month. It must be supposed that the Ruhr occupation was considered in Germany an inevitable fact and preparation for it made long before it took place. The only feasible explanation seems to be that the sharp rise of coal imports in the second half of 1922 was part of the program to accumulate reserves for this event.

The following figures show imports of coal and byproducts in January-September, 1923, in comparison with the corresponding period of 1922, in metric tons.



Southern Appalachian



Virginia

PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES

	1923	1922
Bituminous coal.....	20,311,996	7,180,647
Brown coal.....	1,183,352	1,751,948
Coke.....	1,074,673	1,781,090
Patent Fuel { bit. coal.....	121,340	14,227
brown coal.....	44,548	29,661
Coal tar.....	10,772	24,017
Pitch.....	11,421	18,411
Light oils.....	18,014	1,627
Heavy oils.....	6,401	508
Naphthalin.....	2,135	561

With regard to countries of origin, Great Britain is first by a wide margin, Polish Upper Silesia following. The respective figures are, in metric tons:

	1923	1922
Great Britain.....	12,076,847	4,957,488
Polish Upper Silesia.....	7,235,043	984,486
Sarce district.....	103,680	814,672
Czechoslovakia.....	652,959	101,654
Other countries.....	243,466	322,348

Of the 1,074,673 tons of coke imported 745,446 tons was of British origin, 139,900 tons came from Polish Upper Silesia and the rest from other countries not specified.

The export of coal and byproducts in January-September, 1923, in comparison with the corresponding time of 1922 was as follows, in metric tons:

	1923	1922
Bituminous coal.....	841,703	4,675,186
Brown coal.....	5,083	111,732
Coke.....	197,042	729,726
Patent fuel { bit. coal.....	14,338	37,968
brown coal.....	196,431	299,957
Coal tar.....	14,409	15,158
Pitch.....	14,568	56,926
Light oils.....	914	4,326
Heavy oils.....	27,284	97,161
Naphthalin.....	3,170	2,958

Alaska Coal Output Jumps 25 per Cent in 1923

In 1922 Alaska produced 79,000 tons of coal from twelve small mines and in 1923 about 100,000 tons from the same number of mines, according to the U. S. Geological Survey. The largest quantity came from the Evan Jones mine, in the Matanuska field, and the Healy River mine, in the Nenana field, both served by the Alaska R.R. The significant feature of the year is that the territory is supplying more and more of its own fuel.

Though some exploration of the high-grade coal of the Matanuska and Bering River field was continued in 1923, it has not yet been proved that these fuels can be mined cheaply enough to find an export market. Meanwhile evidence of the enormous reserves of lower grade bituminous and lignitic coals in Alaska is accumulating each year. S. R. Capps reports the finding of workable beds of coal carrying about 60 per cent of fixed carbon at Mile 341, on the Alaska R.R. This coal, which has been opened up, occurs in the Cantwell formation (Eocene), which is widely distributed in this region and long known to carry small seams of coal, but this is the first bed found that has been proved to be of commercial value. The bed mined is from 5 to 6 ft. thick. The discovery of the bed itself is significant, as it is easily workable and quite accessible. Of possible greater significance is the proof of the presence of a new coal-bearing formation near the railroad.

Though the development of Alaska's

The chief countries of destination of coal and coke exports were Holland, Czechoslovakia, Switzerland and Austria.

The situation at the end of the year, three months after the end of the Ruhr blockade, is greatly involved and very precarious. Business is still ebbing and no turn of the tide is in sight. The retrogression of prices, from the exorbitant level they reached during the last excesses of inflation, which put German industry completely out of business for the time being, is a slow and tedious process. No decided revival of the coal market can be hoped for until this process is completed.

GLOOMY OUTLOOK FOR 1924

The bold experiment of rebuilding a gold currency without a gold basis is yet untried. Confidence is lacking. In consequence a dangerous unstability of basic conditions prevails. The outlook for this coming year is therefore gloomy in the highest degree. Moreover, the fate of the Rhineland and the Ruhr is hanging in the balance. Developments point in the direction of a gradual but inevitable alienation of these two provinces. The consequences of their ultimate detachment would be quite impossible to forecast. The understanding arrived at between the Ruhr mines and the Interallied Mission of

Control also is more in the nature of an experiment, compelled by the force of circumstances rather than a well-considered action. It remains to be seen, whether the coal industry of the Ruhr can carry the enormous burden it involves.

The only gleam of light visible at the advent of the new year is the labor situation. The resistance of the miners and the labor element in general to the return to pre-war condition, assisted by a regular tidal wave of unemployment, apparently has been broken. The re-establishment of pre-war labor conditions seems to be on the way. It is impossible, however, to overlook the fact that the acquiescence of the working classes is not due to any change of mind in the matter of their much cherished so-called revolutionary achievements but rather to the fact that, labor funds having been swept away by the vortex of inflation, labor has no hope of defending them effectively in a drawn-out struggle.

The end of 1923 finds the German industry trying to hew a way out of the heap of debris under which the great landslides of the year nearly buried it. This road is strewn with a great number of "Ifs" which defy forecast. Only the great vitality still remaining in the people supports the belief in ultimate success.

high-grade coal has thus far been disappointing, there are vast coal reserves of less fuel value in the territory, and a considerable percentage of these has been made accessible by the government railroad. There can be no reasonable doubt that these reserves will eventually be drawn upon to supply the growing population of the Pacific seaboard.

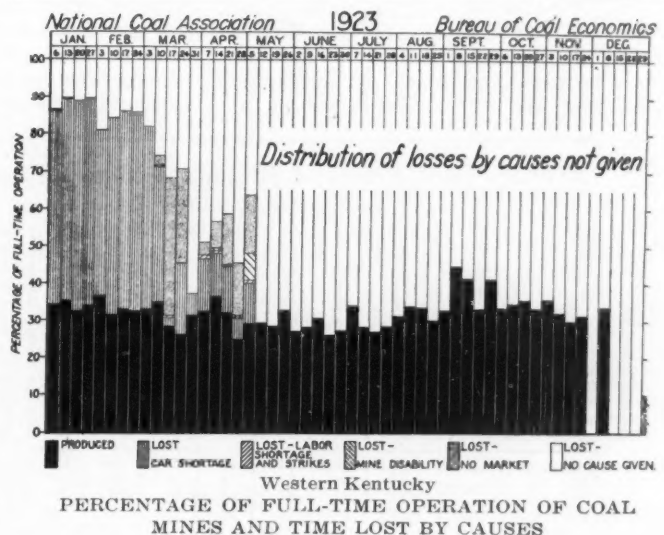
There are enormous areas of coal-bearing formations in northern Alaska, though most of them are now too inaccessible to be utilized. William T. Foran, of the U. S. Geological Survey, who last summer explored the Arctic littoral between Cape Beaufort and Wainwright Inlet, found evidence of a northern and inland extension of the Corwin coal beds.

Mr. Foran found some gently folded coal beds on Kukpowruk River, five or six miles from the coast, which dip from 20 to 40 deg. and are not broken. Some thirteen beds were seen, 4 to 10 ft. thick. Though not yet analyzed, these coals appear to be of the quality of the Corwin coals, which are sub-bituminous. This part of the Arctic coast is accessible to vessels from two to three months, and it af-

fords better shelter than that at Corwin. These coals, which probably are of the Jurassic age, might be utilized to supply Nome and northeastern Siberia.

Shipments from Duluth Drop

Shipments from Duluth-Superior docks suffered a falling off during the past year, according to figures made public last week by the Duluth dock authorities. These figures show that during 1923 199,503 cars went out from the local docks, as compared with 245,683 cars in 1922. This falling off in shipments, coupled with the largest receipts in years, leaves large stocks on the docks. Only continued cold weather will assure a clean-up before spring.



News Of the Industry

No Bituminous-Coal Dictator—Yet; Industry Can't Afford Big Salary

The bituminous coal industry, for the present at least, is not to have a dictator. This was decided definitely at a meeting of the Board of Directors of the National Coal Association in Washington Jan. 8 and 9. The reason given for the action is that the industry cannot afford to pay such salaries as are received by Will Hayes and Judge Landis. There are some who see in this nonchalant dropping of the proposition that had been so stoutly urged a few months ago the passing of the crisis which loomed then.

The directors paid a high tribute to John C. Brydon, president of the association, and expressed their deep appreciation of the sacrifices he has made to further the welfare of the industry. Harry L. Gandy, the executive secretary, was instructed to relieve Mr. Brydon of as much work as possible in the future, so that the demands on his time would be less exacting.

President Brydon was authorized to name several committees. One of these committees is to confer with a similar committee of the American Mining Congress and to study Senator Oddie's bill providing for a Department of Mines. Another committee is to study the practicability of establishing coal exchanges. Still another committee is to be named to prepare resolutions expressing the sorrow of the directors occasioned by the death of Julian B. Huff, of the Keystone Coal & Coke Co., of Greensburg, Pa.; R. M. Randall, of the Consolidated Coal Co., of Michigan, and of Kuper Hood, of the Houston Coal Co., Cincinnati.

The time and place of the annual meeting are to be determined by an-

other committee which Mr. Brydon is authorized to name.

C. E. Bockus, D. B. Wentz and another member to be chosen were designated as the National Coal Association's representatives on the committee which is to act in an advisory capacity to the coal division of the Department of Commerce. The American Wholesale Coal Association and the National Retail Merchants' Association already have designated the three members which each association was asked to select for service on that committee. For service on the committee in the absence of the members, three alternates will be chosen. The anthracite operators and the railroads also are to be represented on the committee.

The railroad relations committee is to be known in the future as the transportation committee. George C. Eastwood, general manager of the Consolidated Coal Co., of Saginaw, was elected a director to fill the unexpired term of R. M. Randall.

Whether or not the association will print an annotated edition of the report of the Harding Coal Commission will be decided when enough members have indicated their desire to purchase the book, at cost, to justify its printing.

The Board of Directors of the association unanimously adopted the following resolution regarding taxation at the quarterly meeting:

"Whereas, A strong expression of opinion coming from members of the National Coal Association, located in the twenty-nine bituminous-coal producing states, is to the effect that the present system of federal taxation is seriously interfering with the re-estab-

lishment of stable and prosperous industrial conditions in the country, and

Whereas, the condition of the times requires the greatest possible reduction in taxes for all classes, therefore Be it resolved, That we favor a curtailment of governmental expenditures and a much needed reduction in taxation so that capital, instead of finding its way into tax-exempt securities, will seek investment, resulting in industrial expansion."

Twenty-six of the thirty-six directors were present. Six of the ten who were prevented from attending were represented.

Commends Coal Commission's Handling of Complex Job

Commenting on the report of the Harding Coal Commission, Richard T. Ely, a widely known economist, says:

"The complexity of the problems in mineral lands is illustrated by the recent investigation by the U. S. Coal Commission. While there are those who are expressing themselves as dissatisfied with the reports of this commission, it is generally conceded that its work is commendable because of the commission's effort to get at the economic as well as technical facts regarding this one industry.

"Pressing problems of a complex nature have resulted from the rapid growth of the mineral industry and we cannot expect to wave a wand and correct all ills.

"In the past, much effort and time have been spent in solving the technical problems of the industry, and in the solution of these rapid progress is being made. The economic aspect of the problems has been neglected to a great extent, but the time has come when more attention must be paid to these."

Average Spot Prices of Bituminous Coal, F.o.b. Mines

(Unit, net ton of 2,000 lb.)

Month	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923
January	\$1.46	\$1.21	\$1.13	\$1.53	\$4.15	\$2.48	\$2.57	\$2.57	\$3.26	\$2.25	\$4.38
February	1.22	1.16	1.12	1.40	4.18	2.53	2.49	2.58	2.77	2.20	3.59
March	1.17	1.09	1.27	3.89	2.58	2.47	2.58	2.63	2.12	3.20	
April	1.17	1.16	1.08	1.24	3.21	2.64	2.43	3.85	2.62	2.24	2.84
May	1.15	1.16	1.07	1.21	4.14	2.67	2.38	4.59	2.68	3.11	2.68
June	1.14	1.12	1.07	1.26	4.00	2.57	2.40	7.18	2.52	2.56	2.56
July	1.18	1.12	1.05	1.22	3.17	2.58	2.47	8.24	2.40	4.67	2.40
August	1.22	1.13	1.07	1.30	3.24	2.58	2.76	9.51	2.42	6.13	2.39
September	1.23	1.11	1.10	1.57	2.02	2.58	2.91	8.52	2.37	5.58	2.46
October	1.29	1.13	1.12	2.26	2.02	2.58	3.09	7.78	2.35	4.48	2.28
November	1.31	1.10	1.17	3.67	2.48	2.58	2.57	5.87	2.35	4.11	2.25
December	1.26	1.11	1.33	4.01	2.48	2.58	2.58	4.38	2.26	4.05	2.18
1st Quarter	1.28	1.18	1.11	1.40	4.07	2.53	2.51	2.58	2.89	2.19	3.72
2nd Quarter	1.15	1.15	1.07	1.24	3.78	2.63	2.40	5.20	2.61	2.64	2.69
3rd Quarter	1.21	1.12	1.07	1.36	2.81	2.58	2.71	8.76	2.40	5.46	2.42
4th Quarter	1.29	1.11	1.21	3.38	2.33	2.58	2.74	6.01	2.31	4.21	2.23
Yearly average	1.23	1.14	1.12	1.85	3.25	2.58	2.59	5.64	2.55	3.67	2.77

Relative Prices of Bituminous Coal

SPOT PRICES JULY, 1913-JUNE, 1914, AS BASE

1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923
120	100	93	126	343	205	213	212	270	186	362
101	96	92	116	346	209	206	213	229	182	297
97	96	90	105	321	214	204	213	217	175	264
97	96	89	103	265	218	200	318	217	185	235
95	96	89	100	342	221	197	379	222	257	221
95	93	88	104	331	212	198	593	208	212	212
97	93	87	101	262	213	204	681	198	386	198
100	93	88	107	268	213	228	786	200	507	198
102	92	91	130	167	213	241	704	196	461	203
106	93	93	187	167	213	256	643	193	370	188
108	91	97	320	205	213	212	485	194	340	186
104	92	110	332	205	213	213	362	187	335	180
106	97	92	116	337	209	208	213	239	181	307
96	95	89	102	313	217	198	430	216	218	222
100	93	89	113	232	213	224	723	198	451	200
106	92	97	280	192	213	227	497	191	348	184
102	94	91	152	269	213	214	466	211	303	226

Daugherty Would Forbid Dissemination of Trade Data by Associations

In "Informal Correspondence" Says He Sees No Objection to Collection of Statistics by Organizations, but Would Put Distribution in Hands of "Responsible Medium"

Another chapter in the history of trade-association activities was added last week, when there was released another batch of correspondence between the Secretary of Commerce and the Attorney General. Mr. Hoover asked Mr. Daugherty whether the Department of Justice interpreted the consent decree in the Tile case as a prohibition to trade associations co-operating with the Department of Commerce from distributing tabulations among members. That, it will be remembered, was one of the things prohibited in the Tile decree. Mr. Daugherty replied that that is just what he meant and added much about trade associations and collection of statistics in general.

The letter of the Attorney General to Mr. Hoover says that it is a fallacious idea that just because data collected by associations relate to past and closed transactions, there can be nothing illegal about such collection. It is further stated that it is a fallacy to conclude that just because the figures collected are given to the public in any form, no matter how thoroughly, the transactions are legal by reason of such publicity.

When asked for an expression of opinion as to the correspondence between Secretary Hoover and Attorney General Daugherty, Judge Nathan B. Williams, associate counsel of the National Association of Manufacturers, said:

"It is sincerely to be regretted that on a question of vital public policy, interesting alike to the business community and all who buy or consume the products of our industry, the Secretary of Commerce and the Attorney General of the United States engage in 'informal' letter writing. This extensive correspondence makes slight, if any, contribution to the clarification of the law concerning the statistical activities of trade associations.

"Apparently, legitimate trade associations will continue their statistical and other activities without reference to this 'informal' correspondence; they will not transgress the well-known inhibitions of existing law, in that they will not misuse their statistical or other trade information in promotion or furtherance of any agreement or conspiracy to fix prices, limit production, restrict sales, divide territory, or otherwise restrain lawful competition in commerce; and it appears likely that they will decline to supply any of such information to any department of the government except that which may be called for by statute under the provisions of the laws providing for the taking of the decennial and other censuses."

Secretary Hoover's letter of Dec. 11

to Attorney General Daugherty was, in part, as follows:

"Some time ago I realized that the carrying out of the purposes of this department as set forth in the organic act 'To foster, promote and develop a foreign and domestic commerce, the mining, manufacturing, shipping and fishing industries, and the transportation facilities of the United States,' required that the character of information desired, and the gathering of it from the individual units of industry would involve such a gigantic physical task that this department with its facilities could not undertake such action with the faintest hope of attaining the ends desired. I therefore have in the past utilized to a very considerable extent the trade associations as a medium for securing such information and have received splendid co-operation from them as a whole.

"Seeking to clarify the situation regarding legitimate trade association activities, I set forth my views in several letters to you in February, 1922, and requested your informal opinion as to the legality of many association functions, including the collection and distribution of the character of information herein referred to. Predicated principally upon your informal views in reply thereto, this department formulated a plan of co-operation with trade associations under which the association's secretary collects and compiles unidentified current information and distributes it to the members simultaneously sending identical reports to governmental agencies, competitors of the association's members, and to any other person who arranges for them. Under this plan no supplemental or separate reports are transmitted to the members only. This department receives all such reports for wide dissemination by publication.

"My attention has been directed to a decree entered Nov. 26, 1923, in the District Court of the United States for the Southern District of Ohio, in the case of United States vs. Tile Manufacturers Credit Association, et al, paragraph two of page four of which is as follows:

Provided, however, that the defendants are not restrained or enjoined from maintaining an association, either voluntary or incorporated, for the following objects and purposes and none other:

after which various permissible activities are set forth. Paragraph 2 of page 3 is as follows:

Provided, however, that the defendants may through the association, or corporation hereinafter provided for, receive and compile for transmission to any governmental agency such information and statistics as it may request as to the production, shipments, the stocks on hand and the prices of tiles, but are restrained from distributing said information among them-



Wide World Photos.

Harry F. Bovard

Mr. Bovard, who lives in Greensburg, Pa., was recently elected president of the Keystone Coal & Coke Co., the largest producing company in Westmoreland County, succeeding Julian B. Huff, who died in Philadelphia Dec. 23. Thirty-two years ago Mr. Bovard became a clerk in the employ of Coulter & Huff, predecessors of the Keystone company, whose coal operations were the first in the Greensburg basin.

selves, except that information respecting sales may be collected annually and used to enable the assessment of the several members for their proportionate parts of the several expenses of the association, and for no other purpose.

"I interpret the last quoted paragraph to mean that it would be unlawful for the proposed association on behalf of its members to transmit information and statistics of the character therein described to its members, but that it could receive and compile it for the purpose only of transmitting it to a governmental agency that might so request.

"It is my understanding that this decree is only binding between the parties thereto; however, in view of informal conversation between representatives of your department and this department on the subject of trade-association activities, I am inclined to be of the opinion that the last-mentioned paragraph embodies an expression of the present policy of your department relative to the collection, compilation and distribution of information and statistics of the character therein set out applicable to trade associations in general.

"It is not the desire or purpose of this department to continue operations under the co-operative plan if it is in conflict with the policy of your department; it is our desire, however, to call your attention to the situation that in my opinion will develop, if my interpretation of this decree correctly expresses the policy of your department.

"I think there is great likelihood that not only the associations from which this department now receives valuable statistics but a great many others will

discontinue the collection of information and statistics as to production, shipments, stocks on hand and the prices on closed transactions. They will not go to the expense of collection, if the only use that can be lawfully made of them is to transmit them to some governmental department. If this should happen, I fear that the efficiency of this department in carrying out the purposes set forth in the act creating it would be very greatly impaired.

"I respectfully request that you informally advise me, in view of the foregoing, whether or not this department should discontinue its present plan of cooperation with trade associations."

MR. DOUGHERTY'S INFORMAL REPLY

Replying under date of Dec. 19, 1923, Mr. Daugherty wrote in part as follows:

"You will observe that this proviso in the decree complies strictly with the paragraphs above quoted from your letter of Feb. 3, 1922.

"Two objects were had in mind during the conferences which preceded the above-mentioned correspondence, both of which it was thought were secured by the limitations embraced in the above quoted paragraphs of your letter: First, that the information distributed should be general, and, second, that individual contact between those engaged in the same industry with reference to matters which vitally affect prices should be avoided. If the character of the information and the manner of its dissemination be restricted as specified in your letter, one member would not be informed as to the individual activities of another member, and those engaged in the industry would be prevented from revealing their business to their competitors.

"Under the system now practiced by many of the associations each member reports its production, shipments, stocks on hand, and each individual sale, stating the price at which it is made and, generally, the locality where made; and this information is distributed by the secretary or manager of the association among all the members, though in some associations the names of the members making the sales are omitted. Thus each member reveals the details

Wooden Coal

Out West they used to burn buffalo chips, cobs, hay, corn and whatnot instead of coal, but these things hardly were ranked as fuel "equal to anthracite." The latter claim, however, is made for pressed sawdust briquets, now being manufactured in the State of Washington. It is announced that tests show this "wooden coal" to be 97 per cent carbon, 2 per cent volatile and 1 per cent ash. It can be briquetted for \$6 a ton, according to those interested. The enterprise would depend upon the great waste piles of sawmills for its raw material.

of his entire business to every other member, which, as suggested by the Supreme Court in the Hardwood case, is entirely inconsistent with the normal attitude of real competitors.

"In my judgment the effect of general information as to the conditions of an industry, such as the total production, shipments, stocks on hand and the average price, or range of prices, is entirely different from that resulting from each person engaged in an industry receiving directly, or through a common medium, reports which reveal to him the exact condition of the business of all of his competitors. When thus informed each one is invited, and is naturally inclined, to imitate the conduct of his most successful competitor; and the spirit of comradeship created by the confidential exchange of information of this character necessarily prevents the free competition between them which would otherwise prevail.

"Those who organize and conduct these associations appear to entertain the idea that if the information imparted relates only to past and closed transactions there can be no violation of the Anti-Trust Act. In my judgment such an idea is wholly fallacious. One's future conduct is to be judged by what he has done and is then doing, and not so much by what he says he will do. It is one's actual conduct that is taken as an example for imitation.

It has developed in the trial of cases involving associations that the members first agreed-upon prices; but such a plan did not work because the members could not be relied upon to keep the agreement; and the system of exchanging statistics was adopted because it was found to be the only effective way to procure co-operation as to prices and production; and such co-operation could be thus procured even in the absence of any positive agreement.

"Again, the idea seems to be prevalent that no exchange of information between the members, regardless of its extent or character, can be unlawful if at the same time publicity be given thereto through the press or some governmental agency. In my judgment this idea is likewise fallacious. The illegality as well as the evil results arise from the co-operation among the members pursuant to a positive or tacit understanding; and this co-operation is not affected by publicity. Those who purchase the commodity, though fully informed as to the activities of the association, can protect themselves only by an organization and co-operation of like character, which, if it were lawful, is an impossibility upon the part of the public.

"I have no doubt that it is important that those engaged in an industry have general information as to the conditions of that industry, but I think that information should be distributed strictly through a responsible medium, like your department; and I see no objection to its being gathered by an association provided it be strictly guarded and the association be prohibited from distributing it among its membership. This is the same view that I entertained when the communications were exchanged in February, 1922; and it has since been strongly confirmed by decisions of the Supreme Court, and by investigations of a number of associations and the trial of cases involving associations.

"This is but a statement of the position I feel impelled to take as Attorney General of the United States in enforcing the Anti-Trust Act. But, of course, as to what activities and how far you will co-operate with trade associations are matters for your determination in conducting your department."

Bituminous Coal Loaded Into Vessels at Lake Erie Ports During Season of 1923

		(In Net Tons)			1922			1921		
Ports	Railroads	Cargo	Fuel	Total	Cargo	Fuel	Total	Cargo	Fuel	Total
Toledo	Hocking Valley	5,026,533	151,965	5,178,498	3,241,786	92,597	3,334,383	4,426,687	116,157	4,542,844
	N. Y. C.-Ohio Central Lines	1,182,193	36,966	1,219,159	860,814	27,965	888,779	1,106,251	32,319	1,138,570
	Baltimore & Ohio	2,891,967	84,402	2,976,369	2,912,587	77,864	2,990,451	2,561,015	78,085	2,639,100
Sandusky	Pennsylvania	3,008,096	95,726	3,103,822	2,794,264	99,730	2,893,994	1,853,148	52,138	1,905,286
Huron	Wheeling & Lake Erie	1,481,428	58,439	1,539,867	430,222	17,587	447,809	1,577,500	45,468	1,622,968
Lorain	Baltimore & Ohio	3,667,957	196,569	3,864,526	1,836,014	91,529	1,927,543	2,546,216	103,113	2,649,329
Cleveland	Pennsylvania	1,870,527	201,470	2,071,997	1,056,464	93,239	1,149,703	2,062,722	91,910	2,154,632
	Erie	739,025	31,920	770,945	381,903	14,464	396,367	359,981	12,782	372,763
Fairport	Baltimore & Ohio	912,131	82,236	994,367						
Ashtabula	New York Central	3,380,040	255,746	3,635,786	1,515,608	88,464	1,604,072	1,125,792	62,214	1,188,006
	Pennsylvania	2,147,144	94,482	2,241,626	1,674,618	90,038	1,764,656	2,300,210	78,097	2,378,307
Conneaut	Bessemer & Lake Erie	2,783,640	242,057	3,025,697	1,618,192	63,317	1,681,509	1,474,202	20,603	1,494,805
Erie	Pennsylvania	738,103	96,532	834,635	199,670	72,387	272,057	1,018,656	66,183	1,084,839
Totals		29,828,784	1,628,510	31,457,294	18,522,142	829,181	19,351,323	22,412,380	759,069	23,171,449

Compiled by Ore & Coal Exchange, Cleveland, Ohio; H. M. Griggs, manager.

Midwest Retailers Decide Not to Split From Their National Association

Instead They Appoint at Chicago Meeting Half of East-and-West Committee on New Policy—Hear Proposals for Coal Exchange and for National Coal Institute

Coal men representing the most important retail interests in the Middle Western States decided at Chicago on Jan. 12 not to withdraw from the National Retail Coal Merchants' Association, although a considerable number of them went to the meeting frankly favoring the creation of a separate Midwest retailers' group. Instead they spent the entire day debating with some heat various problems over which there has been difference of opinion as between East and West, and the evening listening to plans for a coal exchange and a national coal institute, and finally chose a committee of eight which will meet a committee to be appointed by Samuel B. Crowell, president of the National, to represent the Eastern groups of the association. This body is expected to report at the next national convention in Bluefield, W. Va., in June, various changes in the policy and program of the National that will make that body stronger and of more complete service to all sections of the country.

The eight Westerners on the committee are Marshall Keig and Ashley Miller, of Chicago; Ely Barkhume, of Detroit, Mich.; R. H. Jones, of Kenosha, Wis.; H. L. Laird, of Minneapolis, Minn.; Frank G. Laird, of Indianapolis, Ind.; H. S. Mitchell, of Kansas City, Mo., and R. D. Kelly, of Springfield, Mo.

During the day the Midwesterners, who were in session at the invitation of the Chicago Coal Merchants' Association, passed resolutions favoring the Mellon plan of tax reduction and favoring the House bill introduced by Representative Dyer, of Missouri, aimed to reduce the loss of coal caused by theft in transit, by stiffening the penalty for such theft.

John R. Mauff, a member of the Chicago Board of Trade, which operates the grain-trading mart of that city, spoke at a banquet of retailers and producers on the proposed creation of "The United States Coal Exchange," which he would like to see the coal trade set up. He has had much experience in creating such exchanges in various industries. The last venture was in paper—an exchange which did not survive in its original form because of too great diversity of interests.

Mr. Mauff's plan would draw together producers, sellers and buyers of coal on a membership basis like that employed in any other trading exchange. It would bring coal trading into the light of day—in raucous voices—with much benefit to the industry, he thinks. It would be intended to protect the coal trade from "unjust and unlawful exactions," to diffuse accurate

and reliable information among members, to produce uniformity in contracts and the customs of coal trading, to settle differences between members, to provide standards of quality and other such advantages.

Mr. Mauff would have the exchange accept the best known grades of coal as setters of basic prices "with other grades established at a differential higher or lower according to quality and the actual scientific and demonstrated monetary difference in values existing from time to time." He would have a statistical service broadcast the statistics of the market and a daily report go to all members showing sales and shipments. He denied that the exchange would replace coal men's associations, pointing out that the grain exchange in Chicago has not dissolved the several associations of its members. In fact he believes, in view of Attorney General Daugherty's recent ruling against the compilation of trade statistics by associations, that an exchange is the only legal vehicle by which such compilations and reports could be made.

President Crowell of the National association, described the "National Coal Institute" which the retailers' national association would like to see created. It would be a bureau equipped to make various studies of all manner of fuel problems from a scientific and more or less disinterested viewpoint. Such an institute should aid the coal industry in the defence against oil, it should educate the public concerning coal, through publicity and other channels, in a way that has never been so much as approximated, and should serve as a valuable contact between coal producer, coal seller and coal consumer.

"For a good many years," said Mr. Crowell, "I have been thinking—dream-

ing would be a better word—of a day when the coal industry, all branches of it, would be united in a great co-operative movement for its own betterment and the better service of the public—the awakening of public opinion to the fact that we coal men are in reality decent citizens and not rascals. Recent happenings would seem to indicate that there is a possibility of my dream coming true.

"Most of you probably are aware that the anthracite operators have opened in Philadelphia what they call a Coal Economy Show. They have gone to great expense and have spared no pains to interest the public in this show, which is the first of four similar exhibitions to be opened within the month in the principal cities of the East. Primarily, these shows are designed to create a domestic market for the small sizes of anthracite, but the Philadelphia exhibition is having a much wider influence. It contains a mass of valuable information concerning the production and distribution of anthracite and the producing companies have detailed the best men among their engineers and fuel experts to explain the exhibits and advise consumers regarding various heating problems.

"One of the principal features of the show is the handling of complaints made by disgruntled consumers. This is done through the co-operation of our retail organization, the Philadelphia Coal Exchange. Complaints regarding quality, received at the show, are referred to the Exchange. We send an impartial investigator, employed by the organization, to look into the complaint, which usually has to do with quality; we take care of correct weights ourselves. If the fault lies with the dealer—if he has made a bad delivery—we get after him. If the fault lies with the shipper the operators get after him. The system is by no means perfected yet—it has been in operation only a little more than two weeks—but the point I want to emphasize is that it marks the beginning of closer co-operation between dealers and producers and the beginning of the end of the ancient and profitless system of buck-passing between these branches of the industry.

"The effect of this attempt at co-operation with the public and the endeavor to adjust disputes is seen in the changed attitude of the Philadelphia newspapers, which heretofore have been merely passive where they were not openly hostile. Now, without exception, they are saying nice things about the anthracite industry.

"I believe that the co-operative spirit is more in evidence in the retail coal trade than anywhere else in the industry, but it is mainly co-operation among ourselves. What I want to see and what must come about if the industry is to assume before the public and the politicians the position to which its importance entitles it, is not merely co-operation between retailers, or wholesalers, or producers as such, but the

Oiling St. Louis

A study of oil competition with coal made in and around St. Louis, Mo., awakens many coal producers whose natural market is in that territory to the fact that during 1923 the number of oil burners in the region grew from 200 to almost 3,000. It is estimated that each has replaced 25 tons of coal per year, which means "no market" for 75,000 tons in total. The local retailers' association of the region is running an advertising campaign in defence of coal though a great many dealers have taken on an important side line and now sell both coal and oil from the same yard.

broadest kind of co-operation of all branches, one with another.

"Much can be accomplished to this end through the national associations. We have ours, the wholesalers have theirs and so have the producers. We should use these organizations to the fullest extent in an effort to co-ordinate the entire industry into a harmoniously working body.

"Let us, therefore, proceed to mend our own fences in a spirit of harmony as between the various branches of the trade. And in doing so I ask you to keep in mind the goal which is my dream—a broad co-operative organization of coal men, a coal institute if you like—to which everybody, public, coal men and, if you will, politicians, may turn for information and advice on every subject connected with fuel, freely given by men of recognized ability whose words will be accepted as authoritative; an organization the very character of which will eventually place the industry where it belongs in the public mind."

At the banquet the National Association presented a grand piano to Homer D. Jones, of Chicago, former president for a year. John Lloyd, of Philadelphia, was toastmaster. Charles M. Moderwell, of Chicago, a veteran operator and wholesaler, in a brief speech warned the retailers that the coal industry must pull together or "something unpleasant is going to happen to us."

Kansas Governor Finds Coal Prices Lower

The usual winter protests on coal prices have been reaching Governor Jonathan Davis, especially from Topeka, Lawrence and Emporia. He insisted somebody should investigate. All state departments that might logically make such a quiz asserted that they were too busy. So Governor Davis made the Industrial Court judges assistant attorneys general. Finally Judge John J. Crawford reported that in Topeka prices are from \$1.25 to \$1.75 lower than last year with no changes in freight rates. He said that Illinois producers, with thick coal, are making a drive to take the Missouri Valley markets with prices too low for Kansas and Oklahoma producers to meet, in spite of their short-haul advantages.



R. M. Randall

Mr. Randall, who died at Battle Creek Jan. 1, was a man of varied interests, having been a banker and lumberman as well as general manager of the Consolidated Coal Co. of Michigan. He also was a director of the National Coal Association.

Conclude Argument in Maynard Case

Concluding arguments in the case of the Maynard Coal Co. against the Federal Trades Commission were presented to the Court of Appeals of the District of Columbia Jan. 10. The case was argued by Mr. Busic, attorney for the Trade Commission, and by former Judge Stephen A. Foster, of Chicago.

In his argument Mr. Busic contended that in demanding cost of production data the commission was merely seeking information from the coal industry, while Judge Foster insisted that the commission in doing so was trying to regulate the industry.

At the request of Mr. Busic, the commission was permitted to file with the court the brief of the Solicitor General of the United States filed in the U. S. Supreme Court in the Claire Furnace case.

The indications are that the Court of Appeals will not render a decision in the Maynard case until after the U. S. Supreme Court decides the Claire Furnace case.

Daily Byproduct Coke Output Slightly Lower Last Month

The daily rate of output of byproduct coke declined slightly during the last month of 1923. While the total output of byproduct coke was somewhat greater than in November—2,999,000 tons against 2,942,000—the output per day decreased from 98,055 tons to 96,740 tons, a decline of 1.3 per cent. The percentage of production to capacity declined from 81.1 per cent to 80.1 per cent. There was no change in the number of plants active; out of 70 byproduct installations now in existence, 65 were in operation and 5 were idle.

The total production of the beehive ovens in December was 1,063,000 tons, a decrease of 40,000 tons compared with November. The output in December, however, was reduced by the Christmas holiday and by the occurrence of five Sundays in one month, and the rate of production per working day underwent no change.

MONTHLY OUTPUT OF BYPRODUCT AND BEEHIVE COKE IN THE UNITED STATES (a)
(In Thousands of Net Tons)

	Byproduct Coke	Beehive Coke	Total
1917 Monthly average	1,870	2,764	4,634
1918 Monthly average	2,166	2,540	4,706
1919 Monthly average	2,095	1,638	3,733
1920 Monthly average	2,565	1,748	4,313
1921 Monthly average	1,646	462	2,108
1922 Monthly average	2,374	669	3,043
October 1923	3,099	1,290	4,389
November, 1923.....	2,942	1,103	4,045
December, 1923.....	2,999	1,063	4,062

(a) Excludes screenings and breeze.

In spite of this gradual decline in the output of coke, the ovens continue to require very large quantities of coal. To manufacture the coke produced in December required the charging of 5,986,000 tons of coal, of which 4,309,000 tons was used by the byproduct ovens alone.

ESTIMATED MONTHLY CONSUMPTION OF COAL FOR MANUFACTURE OF COKE (a)
(In Thousands of Net Tons)

	Consumed in Byproduct Ovens	Consumed in Beehive Ovens	Total Coal Consumed
1917 Monthly average	2,625	4,354	6,979
1918 Monthly average	3,072	4,014	7,086
1919 Monthly average	2,988	2,478	5,466
1920 Monthly average	3,684	2,665	6,349
1921 Monthly average	2,401	706	3,107
1922 Monthly average	3,411	1,056	4,467
October, 1923.....	4,452	2,035	6,487
November, 1923.....	4,226	1,740	5,966
December, 1923.....	4,309	1,677	5,986

(a) Assuming a yield of merchantable coke of 69.6 per cent of the coal charged in byproduct ovens, and 63.4 per cent in beehive ovens.

Receipts of Coal at Milwaukee by Months in 1923

(In Net Tons)

Month	By Vessel			By Car Ferry			By Rail			By Lake and Rail	
	Hard	Soft	Total	Hard	Soft	Total	Hard	Soft	Total	Grand Total	
January.....				18,047	65,451	83,498		73,778	73,778	157,276	
February.....				23,605	62,383	85,988	130	79,184	79,314	165,302	
March.....				32,220	55,239	87,459		179,024	179,024	266,483	
April.....				18,427	80,176	98,603		109,612	109,612	208,214	
May.....	166,851	562,688	729,539	30,636	48,242	78,878		50,428	50,428	858,845	
June.....	124,668	532,163	656,831	27,977	31,495	59,472	50	42,124	42,174	758,477	
July.....	161,789	453,895	615,684	24,768	41,986	66,754	3,400	61,341	64,741	747,179	
August.....	148,154	274,447	422,601	16,408	35,478	51,886		49,556	49,556	524,043	
September.....	32,177	262,151	294,328	14,114	39,662	53,776	3,341	43,569	46,910	395,014	
October.....	150,685	512,357	663,042	16,097	41,612	57,709		41,515	41,515	762,266	
November.....	146,400	558,021	704,421	16,625	40,140	56,765		43,134	43,134	804,320	
December.....	35,500	83,000	118,500	10,814	33,791	44,605	750	49,910	50,660	213,765	
Total.....	966,224	3,238,722	4,204,946	249,738	575,655	825,393	7,671	823,175	830,846	5,861,185	
Total 1922.....	360,070	2,331,407	2,691,477	108,620	272,664	381,284	879	428,805	429,684	3,502,445	
Increase over 1922.....	606,154	907,315	1,513,469	141,118	302,991	444,109	6,792	394,370	401,162	2,358,740	

Sees Nation's Economic Future Dependent On Adequate Transportation

Herbert Hoover Urges Far-Sighted Policy at Opening of National Conference—Barnes Asks Better Treatment from the Government—Hines Discusses Budget System

The formulation of long-view national policies in transportation that will effect economical and adequate handling of goods is the first fundamental to our whole economic future, declared Herbert Hoover, Secretary of Commerce, at the opening session of the National Transportation Conference at Washington on Jan. 9. Continuing, Mr. Hoover said that "the solution of the problems in such policies is only in part a matter of legislation and governmental relations. They are in large part to be solved by initiative and voluntary co-operation among the business community. It marks a great step in our business progress when all the elements such as are represented in the sub-committees may come together and agree on solutions of important questions, and outline a method of co-operation by which they may be attained."

Julius H. Barnes, president of the Chamber of Commerce of the United States, which body had arranged the conference, presided, and another speaker at the session was Walker D. Hines, former Director General of Railroads.

In his opening remarks Mr. Barnes said there should be no place for misunderstanding and antagonism between American methods in production and American methods in transportation, which have marched hand in hand to make secure the standard of possession on the western farm.

"Production, both of farm and factory," he continued, "stimulated and expanded by ready access to a great, wide market of adequate buying power, is dependent at every stage on adequacy of transportation for the enormous volume of national production. The great rising curve of living standards, the security of American health, the widening of American opportunity and the strengthening of American individual content and happiness—all these run parallel with the rising curve of the tonnage of commodity distribution. The problem is to visualize, into terms which every man can understand, the fact that transportation, adequate, ready, possessed of the means not only of present expansion but responsiveness to new methods and new devices, is the very structure on which their earning power and the possession of articles of necessity and comfort depend."

Referring to increase of industry values, Mr. Barnes said:

"It is suggestive of study when we find the increase in forms of wealth between 1900 and 1920 recorded in their major aspects as follows:

Farm values.....	281 per cent
Manufacturing industries....	398 per cent
Railroads.....	93 per cent
Total national wealth.....	295 per cent

"The time has come when America must divest itself of the accumulated prejudices and passions in the treatment of transportation; when it must realize its dependence upon a continued and constant expansion, and plan such relations of government to this industry that it shall be able to serve the full measure of national progress."

Mr. Hines, in his address, spoke of the budget system and the proposed repeal of the rate-making rule. Of the latter proposal he said he has been able to think of but one group of the public than can find an adequate motive for advocating such a change in the law, and that is the group that wishes to see private operation fail, so as to make government operation a necessity.

Speaking of the budget system Mr. Hines said:

"We have heard a great deal in this country about a budget system and gradually the country is adopting the budget system. Section 15A is really the application of the budget principle in a broad sense to railroad regulation. The statute thus expresses the homely truth 'look before you leap,' and the other homely truth 'count the cost.' It is designed to prevent the haphazard dealing with specific rate problems without regard to the effect upon the general situation. This new railroad rule is a simple and honest recognition of the fact that the public cannot have satisfactory railroad service without paying the cost, including a fair compensation for the capital employed."

Southern Gem Coal Co. Lifts Receivership

The U. S. Court of Appeals at Chicago has lifted the receivership placed upon the Southern Gem Coal Corporation, of Chicago, by a federal court in East St. Louis. This leaves the corporation free to continue operating its various central and southern Illinois mines and other properties, including the Wabash, Chester & Western Ry., and also free to fulfill its contract to supply the output of its two Franklin County mines to Simon Levy, of Chicago, a direct-to-consumer dealer doing a big business all over the central west.

Although the East St. Louis federal court order put the property of the corporation into the hands of C. B. Thomas and W. S. Wilson as receivers, an ancillary receivership was necessary in order to give the receivers control of the books, records and operating headquarters. Without it, neither the receivers nor the corporation could produce a ton of coal. The application for this ancillary receivership was denied, Judge Wilkerson, of the District Court

95 per Cent Less Babel

A few years ago, when the Pacific Coast Coal Co. issued any notices to its employees, the communications had to be printed in half a dozen foreign languages. Today 95 per cent of the employees are American citizens and practically every one can read English, according to A. E. Holden, editor of the company's new weekly magazine for employees, *The Pacific Coast Bulletin*.

of northern Illinois, hearkening to the corporation's contention that it was now in position to meet its payrolls, interest charges and other obligations and that a majority of the creditors did not approve of the receivership. Then on Jan. 10 Judges Evans, Alschuler and Baker, of the U. S. Court of Appeals, set aside the receivership and returned the property to the corporation.

It was reported late in the week that Mr. Wilson intends at once to make a new effort to get the receivership ordered once more—this time on a basis that will make it bulletproof.

66 Convicts Mutiny in Alabama Coal Mine

Sixty-six convicts leased by the State of Alabama to the Thomas-Weller Mining Co., operating coal mines forty miles south of Birmingham, mutinied against operating methods on Jan. 11. It is reported that leaders in the strike include white prisoners who took part in the revolt at Banner mines last September, which led to a movement of state officials to better conditions under which leased convicts work in privately owned mines. The men worked in the Aldrich mines of the bankrupt Montevallo Mining Co. Officials of the company denied that any serious disturbance had taken place but did admit that the day shift had refused to work. Reports from Montevallo are that the men barricaded themselves in the slope after entering without guards. Reports that the machinery had been damaged considerably by dynamite were denied by the mine officials at the company's office in Birmingham.

Who Greeted Union with Dynamite?

It was reported from Harlan, Ky., on Jan. 8 that officials of a new office opened in that city by the United Mine Workers were greeted with a package of dynamite at the door on that date, and that the union leaders immediately left town. While it has been intimated that the dynamite was a threat, coal men believe that it may have been placed there by union men themselves, with the idea of trying to make labor feel that the operators were resisting the union idea, even to the extent of using dynamite threats.

Oddie Sifts All Coal Plans and Hearings In Drafting Administration Bill

Opposes Government Ownership and Regulation in Peace Time — Sees
Need for Encouragement and Assistance Through Mines
Department Represented in the Cabinet

BY PAUL WOOTON
Washington Correspondent of *Coal Age*

Despite Senator Oddie's desire to introduce the legislation prompted by the report of the Harding Coal Commission, it has been found that delays are numerous in attempting to frame the actual bill. It is no easy task to translate into the concise form which a bill must take the varied and intricate provisions of such a measure. While the initial bills will embody certain of Senator Oddie's ideas, which are at variance with the recommendations of the Coal Commission, it is probable that the legislation as introduced will not represent his final opinion as to what should be enacted. He is anxious to get the matter in concrete form so as to obtain criticisms and suggestions from all concerned.

The Nevada Senator, however, is not waiting for the introduction of the bill to begin work. He is studying all the different plans which have been put forward, in addition to those of the Coal Commission. He is going over the hearings conducted in previous sessions of Congress when coal legislation was proposed.

He is definitely and finally opposed to government ownership, and to the regulation of prices, profits, wages and margins in peace times. He realizes that any such enactment, in addition to being unconstitutional, would not be in the public interest. He is approaching the whole problem with the idea of obtaining an abundance of coal of good quality.

Among the things he believes will contribute to this improved service is the current publication of facts as to supply and demand, in order that both buyer and seller may act intelligently and not blindly as they did in 1916, 1917, 1920 and even during the last bituminous strike in 1922. He also would like to see gathered all facts bearing on labor disputes and upon transport, the factors which have caused interruption of supply. He thinks there should be readily available at all times facts regarding such important matters as the real earnings of mine workers and of the ability of the industry to pay. He recalls that almost all the studies of either wages or costs of production have not been so timed as to have a bearing on wage negotiations. He thinks they should be kept up currently.

The commissions which have been called together periodically to deal with difficulties arising in the coal industry soon complete the main purpose for which they were created. The facts and figures which they collect are published, but they are not kept before

the industry and the consuming public. Were there a Department of Mines, Senator Oddie argues, this highly essential information could be kept before all those concerned. The Secretary of Mines would receive from the fact-finding agency, for instance, the statistics covering quantity of coal in storage. If they should show that stocks had fallen below the margin of safety, he could urge the stocking of the approximate amount of coal necessary to provide for possible interruption.

Senator Oddie is thinking of more than an agency which will issue only bare facts. He thinks there should be in the federal government a major subdivision to which the mining industry can look for encouragement, for advice and for the formulation of policies. The current reporting of facts, however, will be only an incidental phase of his measure.

In this connection it is known that the Senator is re-reading with much interest Dr. Garfield's recommendation for an advisory committee of operators and miners to be presided over by a Cabinet member. Dr. Garfield suggested that this would be an effective means of keeping in touch with the state of the industry, its problems and its needs.

It is Senator Oddie's purpose to draft legislation in the form that does not seem to indicate that the coal industry is an enemy of the public. He recognizes it as one of the great basic industries on which the public is compelled to depend as on few others and without whose prosperity there can be no general prosperity. As a mine operator himself, Senator Oddie is in a position to appreciate the engineering achievements and the other great accomplishments that have taken place in the coal industry. He is rather impatient with the attitude of fault finding into which so many persons fall when they consider the problems of the coal industry. While he admits there is some ground for criticizing the industry, he suggests that sight be not lost of the fact that the producing power of the American miner, working with highly efficient mechanical equipment, is four times as great as that of the British or German miner and five times as great as that of the French miner.

Much has been said in condemnation of the distribution of coal. With all the faults of the existing system, Senator Oddie is rather struck with the fact that there is something to be said in favor of an achievement which involves the moving of nearly 600,000,000

tons of a bulky product from 9,000 mines to 90,000 carload buyers in 48 states.

Since our whole progress as an industrial nation depends on an abundant supply of cheap fuel, Senator Oddie feels that Congress must be careful not to create conditions which handicap the industry in the realization of maximum efficiency.

His opinion is that the federal government should play its part in creating conditions under which this great enterprise can grow and keep pace with the country's development. To accomplish this in the ideal way, he believes, calls for nothing less than a separate department with representation at the Cabinet table.

Holidays Hit Production in Central Pennsylvania

Approximately 3,480,350 tons of coal was produced in the central Pennsylvania district in the month of December, or 60 per cent of the estimated production capacity. The loadings for the last week of December showed a decided drop over the previous week, being 10,737 cars as compared with 16,664 cars the week previous.

There was a slight gain over the month of November; the December production, not including Dec. 31, was 58,466 car loads, compared with 54,695 car loads in November. The daily average production for the month of December was 2,436 carloads, as compared with 2,486 carloads in November. Prices remain the same. The number of no-bill cars in the district at the close of December was 1,034.

Working figures for the mines in the district for the last week are as follows:

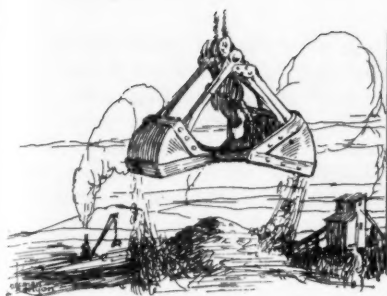
Mines idle	357
Mines working 1 day	63
Mines working 2 days	64
Mines working 3 days	66
Mines working 4 days	68
Mines working 5 days	38
Mines working 6 days	0

The total production figures for the year in carloads are as follows:

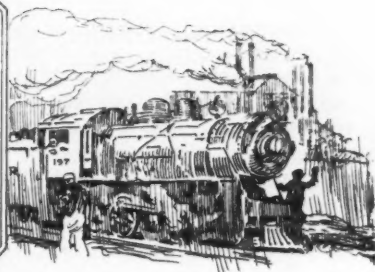
January	82,835	July	73,784
February	69,297	August	80,361
March	79,542	September	67,790
April	69,567	October	63,466
May	73,768	November	57,074
June	77,416	Dec. (Inc. 29)	58,466

Asks Congress to Settle For Navy Coal

President Coolidge has requested Congress to appropriate \$242,080.29 to settle judgments rendered against the United States in the U. S. District Court for the District of New Jersey and affirmed by the U. S. Supreme Court in favor of the New River Collieries Company, in which suits were instituted to recover just compensation for coal requisitioned by the Navy Department under Section 10 of the Lever Act. Judgments were rendered on April 15, 1921, in favor of the New River Collieries Company in three suits, as follows: No. 1 for \$213,100.11; No. 2 for \$19,700.91 and No. 3 for \$9,279.27.



Production And the Market



Bituminous-Coal Output Is Absorbed Readily; Spot Trade Active; Contract Movement Steady

The soft-coal market is in good condition, notwithstanding the low prices quoted. Production is easily absorbed, spot business is active and contract coals are moving in steady volume. Contracting is in the making although neither producer nor consumer appears anxious. Reported quotations for contracts range all the way from 25c. to 75c. above current spot figures at New York to from \$3 to \$3.25 at Philadelphia, with reports that a quotation close to \$1.65 had been given to a Southern railway. There also are reports that some high-grade northern West Virginia coals were being held close to \$2.75. Strike talk is having scarcely any effect on consumers, although at Pittsburgh there is a belief that there will be a suspension.

The cold wave which covered most sections of the country recently was of too short duration to have any lasting effect on the coal markets. Demand for domestic coals improved slightly, but the steam coal market was not stimulated and in the Middle West quotations softened. Domestic sizes of anthracite are easier and quotations for independent product are slightly lower. Arkansas semi-anthracite is making an impression around the Twin Cities as a substitute for Pennsylvania hard coal at \$2 less per ton.

Soft-Coal Production Recovers Quickly

Coal Age Index of spot prices of soft coal as of Jan. 14 does not show any change from the previous week, standing at 182 with an average price of \$2.20.

The drop in production of soft coal due to the holiday season was quickly recovered, but the pick-up in buying expected by some producers was not forthcoming. Interest now centers in the stock report to be made public about Feb. 1, which it is expected will show a considerable increase in consumers' reserves over Sept. 1, when they were about 56,000,000 net tons.

Conditions in the Middle West are quiet again fol-

lowing the few days of lower temperatures. Demand is easier and prices of some grades are lower. The reported move to cut wages in some Pocahontas mines provoked some discussion, considerable non-union coal from Kentucky and other fields meantime making its appearance in the Chicago market, quoted at low figures. Retail business in St. Louis is the one bright spot, with greater demand reflected in middle grade coals.

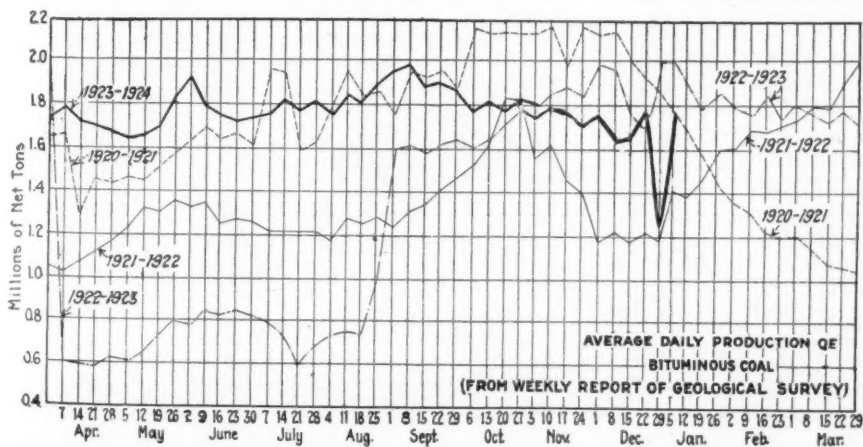
More Vigor in Ohio Market; Prices Steadier

There is more vigor in the Ohio markets than for some time and prices are steadier. Domestic coals improved slightly and while new orders have been freely placed some cancellations also have taken place. The steam-coal market was not stimulated and is quiet.

One market in which the cold wave did not affect the domestic trade to any great extent was at Pittsburgh. No distinct improvement was noticed, due principally to the well-filled cellar bins of both house owners and dealers. Industrial consumption is heavy and steel operations are reported as better than during December. There is no stimulus to buying in New England and industries are well supplied. Quotations for the better grades show a slight improvement. Further curtailment in industrial lines is under way.

The situation along the Atlantic seaboard is quiet. Some small contracts have been reported, while cement manufacturers are said to be picking up considerable slack. An improvement is noted in the export situation at Baltimore. Dumpings are on the increase when compared with the corresponding period of last year.

Production of soft coal during the week ended Jan. 5 is estimated by the Geological Survey at 9,031,000 net tons, an increase of 2,318,000 tons over the previous week. During the same period 1,419,000 net tons of anthracite was produced, an increase of 183,000 tons when compared with the week ended Dec. 29.



Estimates of Production

(Net Tons)

BITUMINOUS

	1922-1923	1923-1924
Dec. 22	10,138,000	10,543,000
Dec. 29 (b)	10,171,000	6,713,000
Jan. 5 (a)	10,993,000	9,031,000
Daily average	2,074,000	1,747,000
Calendar year	10,993,000	9,031,000
Daily average cal. year ..	2,074,000	1,747,000

ANTHRACITE

Dec. 22	2,065,000	1,990,000
Dec. 29	1,588,000	1,236,000
Jan. 5	1,725,000	1,419,000
Calendar year	1,725,000	1,419,000

COKE

Dec. 29 (b)	260,000	223,000
Jan. 5 (a)	309,000	234,000
Calendar year	309,000	234,000

(a) Subject to revision. (b) Revised from last report

Midwest Flurry Calms Down

The considerable rush for Midwestern coal which followed immediately upon the opening of the below-zero weather of two weeks ago quieted down noticeably with the rise in temperature a week ago. Although most Illinois and Indiana mines worked an average of a little better than three days a week, few operations ran every day. Steam sizes from those fields softened a little, although the call for domestic coal was not sufficient to clean out all the "no bills" in the large sizes. Production did not get high enough to depress screenings much. Along toward the end of the past week there were signs of temporary car shortage here and there. This, however, was not serious.

Smokeless coals from the non-union East continued in Chicago at a mine price of \$2@2.25 without the increase which was expected if the bitter cold continued a few more days. A temporary shutdown of many Pocahontas operations growing out of a move to cut miners' wages was much discussed in the smokeless markets of the West, but the prices did not stiffen much, and by the end of the week no

shutdown had been made. A good deal of cheap non-union coal from various Kentucky and other Eastern fields continued to appear on the Midwest market, holding trade that Illinois producers lost by their policy of winter price cuts after they had stocked dealers during the autumn. This has taken about all the buoyancy out of a market that might have been made snappier by recent winter weather.

St. Louis Still Busy

St. Louis business continues good with the retailers. They did not clean up all their stock during the cold wave at New Year's but they got low enough to arouse them into buying. There has been a little demand for high-grade, but the greater call has been for middle-grade coal. Standard found a ready market with the domestic consumer. The 25c. advance in Standard did not stick, however. A burst of production set them back.

Country business has been unusually good, but for cheaper coals only. Wagonload steam continues to show improvement, while carload steam has eased up and there is a volume of screenings and nut unbilled, whereas a few

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern		Market Quoted	Jan. 15 1923	Dec. 31 1923	Jan. 7 1924	Jan. 14 1924†
Smokeless lump.....	Columbus...		\$7.25	\$3.35	\$3.35	\$3.15@3.50
Smokeless mine run.....	Columbus...		6.60	1.85	1.85	1.75@2.00
Smokeless screenings.....	Columbus...		5.85	1.25	1.25	1.20@1.45
Smokeless lump.....	Chicago...		7.75	3.50	3.10	3.00@3.25
Smokeless mine run.....	Chicago...		6.35	2.10	2.10	2.00@2.25
Smokeless lump.....	Cincinnati...		7.75	3.10	3.00	2.75@3.50
Smokeless mine run.....	Cincinnati...		6.35	2.10	2.00	2.00@2.50
Smokeless screenings.....	Cincinnati...		6.10	1.75	1.75	1.50@2.00
*Smokeless mine run.....	Boston...		8.75	4.65	4.65	4.75@4.90
Clearfield mine run.....	Boston...		4.85	1.85	1.85	1.50@2.25
Cambria mine run.....	Boston...		5.50	2.50	2.50	2.15@2.85
Somerset mine run.....	Boston...		5.10	2.10	2.10	1.75@2.50
Pool 1 (Navy Standard).....	New York...		5.75	3.00	3.00	2.75@3.25
Pool 1 (Navy Standard).....	Philadelphia...			3.00	3.00	2.75@3.25
Pool 1 (Navy Standard).....	Baltimore...		6.10			
Pool 9 (Super. Low Vol.).....	New York...		5.25	2.10	2.25	2.00@2.50
Pool 9 (Super. Low Vol.).....	Philadelphia...		5.75	2.30	2.30	2.10@2.50
Pool 9 (Super. Low Vol.).....	Baltimore...		5.75	2.00	1.85	1.75@2.00
Pool 10 (H.Gr. Low Vol.).....	New York...		4.75	1.85	1.85	1.75@2.15
Pool 10 (H.Gr. Low Vol.).....	Philadelphia...		5.25	1.85	1.85	1.70@2.00
Pool 10 (H.Gr. Low Vol.).....	Baltimore...		5.20	1.90	1.80	1.75@1.90
Pool 11 (Low Vol.).....	New York...		4.25	1.60	1.60	1.60@1.75
Pool 11 (Low Vol.).....	Philadelphia...		4.35	1.65	1.65	1.55@1.75
Pool 11 (Low Vol.).....	Baltimore...		4.20	1.75	1.65	1.65
High-Volatile, Eastern						
Pool 54-64 (Gas and St.).....	New York...		3.60	1.60	1.60	1.60@1.75
Pool 54-64 (Gas and St.).....	Philadelphia...		4.15	1.70	1.70	1.60@1.80
Pool 54-64 (Gas and St.).....	Baltimore...		3.85	1.50	1.50	1.50
Pittsburgh se'd gas.....	Pittsburgh...		5.25	2.50	2.40	2.35@2.50
Pittsburgh gas mine run.....	Pittsburgh...			2.25	2.30	2.25@2.35
Pittsburgh mine run (St.).....	Pittsburgh...		3.35	2.00	2.10	1.90@2.10
Pittsburgh slack (Gas).....	Pittsburgh...		3.20	1.65	1.60	1.50@1.75
Kanawha lump.....	Columbus...		6.25	2.60	2.60	2.50@2.75
Kanawha mine run.....	Columbus...		3.75	1.60	1.60	1.50@1.75
Kanawha screenings.....	Columbus...		3.35	1.10	1.10	1.00@1.25
W. Va. lump.....	Cincinnati...		6.50	2.60	2.60	2.25@3.00
W. Va. Gas mine run.....	Cincinnati...		3.75	1.55	1.65	1.35@2.00
W. Va. Steam mine run.....	Cincinnati...		3.35	1.55	1.65	1.35@2.00
W. Va. screenings.....	Cincinnati...		3.25	1.30	1.30	1.10@1.50
Hooking lump.....	Columbus...		5.35	2.60	2.60	2.50@3.00
Hooking mine run.....	Columbus...		3.10	1.80	1.80	1.65@2.00
Hooking screenings.....	Columbus...		2.75	1.30	1.30	1.25@1.40
Pitta. No. 8 lump.....	Cleveland...		5.00	2.45	2.45	2.00@2.95
Pitta. No. 8 mine run.....	Cleveland...		3.40	1.90	1.95	1.85@1.90
Pitta. No. 8 screenings.....	Cleveland...		3.15	1.55	1.55	1.60@1.70
Midwest		Market Quoted	Jan. 15 1923	Dec. 31 1923	Jan. 7 1924	Jan. 14 1924†
Franklin, Ill. lump.....	Chicago...		\$5.35	\$3.35	\$3.60	\$3.25@3.75
Franklin, Ill. mine run.....	Chicago...		3.85	2.35	2.35	2.25@2.50
Franklin, Ill. screenings.....	Chicago...		2.70	1.85	2.05	1.90@2.50
Central, Ill. lump.....	Chicago...		4.35	3.00	3.10	3.00@3.25
Central, Ill. mine run.....	Chicago...		3.50	2.10	2.10	2.00@2.25
Central, Ill. screenings.....	Chicago...		2.10	1.35	1.75	1.60@1.75
Ind. 4th Vein lump.....	Chicago...		5.10	3.10	3.10	3.00@3.25
Ind. 4th Vein mine run.....	Chicago...		3.60	2.60	2.60	2.50@2.75
Ind. 4th Vein screenings.....	Chicago...		2.50	1.65	1.85	1.75@2.00
Ind. 5th Vein lump.....	Chicago...		4.10	2.50	2.50	2.50@2.75
Ind. 5th Vein mine run.....	Chicago...		3.10	2.10	2.10	2.00@2.25
Ind. 5th Vein screenings.....	Chicago...		2.25	1.55	1.70	1.60@1.80
Mt. Olive lump.....	St. Louis...			3.10	3.10	3.00@3.25
Mt. Olive mine run.....	St. Louis...			2.50	2.50	2.50
Mt. Olive screenings.....	St. Louis...			1.85	1.85	1.50@1.60
Standard lump.....	St. Louis...		4.10	2.85	2.90	2.85@3.00
Standard mine run.....	St. Louis...		2.60	1.95	1.95	1.90@2.00
Standard screenings.....	St. Louis...		1.85	1.55	1.55	1.25@1.35
West Ky. lump.....	Louisville...		4.35	2.85	2.85	2.75@3.00
West Ky. mine run.....	Louisville...		2.55	1.65	1.65	1.40@1.75
West Ky. screenings.....	Louisville...		2.30	1.35	1.40	1.25@1.60
West Ky. lump.....	Chicago...		4.25	2.85	2.85	2.75@3.00
West Ky. mine run.....	Chicago...		2.60	1.75	1.75	1.50@1.75
South and Southwest						
Big Seam lump.....	Birmingham...		3.95	3.85	3.85	3.75@4.00
Big Seam mine run.....	Birmingham...		2.35	1.95	1.95	1.75@2.15
Big Seam (washed).....	Birmingham...		2.60	2.35	2.35	2.25@2.50
S. E. Ky. lump.....	Chicago...		6.25	3.10	3.10	2.75@3.25
S. E. Ky. mine run.....	Chicago...		3.85	1.85	1.85	1.75@2.00
S. E. Ky. lump.....	Louisville...		6.50	3.00	3.00	2.75@3.25
S. E. Ky. mine run.....	Louisville...		3.50	1.75	1.70	1.40@1.90
S. E. Ky. screenings.....	Louisville...		3.25	1.35	1.60	1.50@1.75
S. E. Ky. lump.....	Cincinnati...		6.50	2.85	2.60	2.25@3.25
S. E. Ky. mine run.....	Cincinnati...		3.60	1.50	1.50	1.25@2.00
S. E. Ky. screenings.....	Cincinnati...		3.10	1.25	1.30	1.00@1.50
Kansas lump.....	Kansas City...		5.50	4.75	5.00	5.00
Kansas mine run.....	Kansas City...		3.75	3.00	3.25	3.25
Kansas screenings.....	Kansas City...		2.50	2.00	2.00	2.25

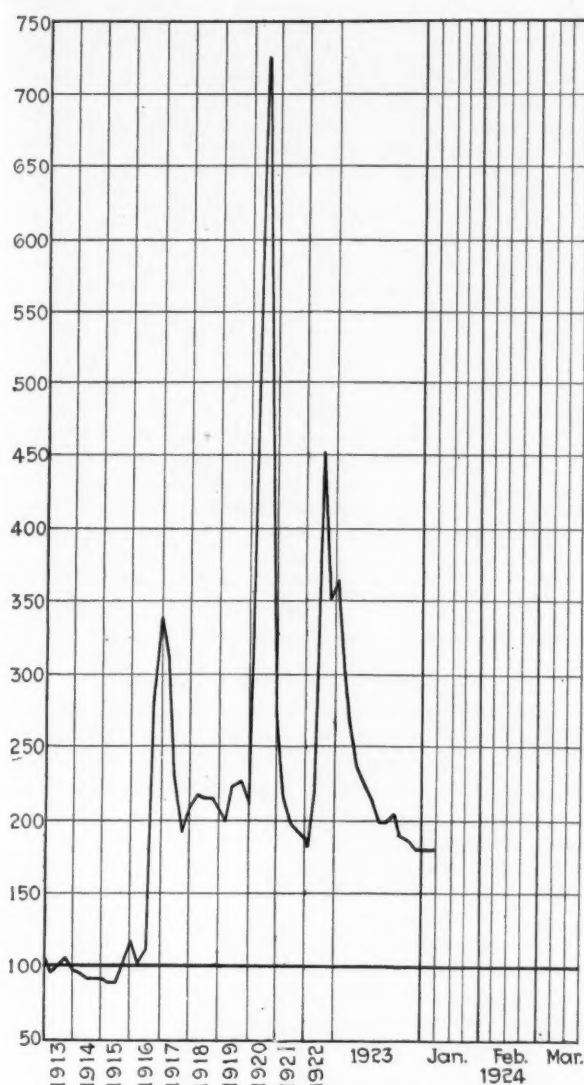
* Gross tons, f.o.b. vessel, Hampton Roads.

† Advances over previous week shown in heavy type, declines in italics.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	Jan. 15, 1923		January 7, 1924		January 14, 1924†	
			Independent	Company	Independent	Company	Independent	Company
Broken.....	New York...	\$2.34	\$9.00	\$7.75@8.25		\$8.00@9.25	\$8.00@9.25	\$8.00@9.25
Broken.....	Philadelphia...	2.39		7.90@8.10				
Egg.....	New York...	2.34	9.25@12.00	8.00@8.35	8.50@10.00	8.75@9.25	8.75@9.50	8.75@9.25
Egg.....	Philadelphia...	2.39	9.25@11.00	8.10@8.35	9.50@10.00	8.75@9.25	9.50@10.00	8.75@9.25
Egg.....	Chicago...	5.06	12.00@12.50	7.20@8.25	9.60@12.50	8.00@8.35	9.60@12.50	8.00@8.35
Stove.....	New York...	2.34	9.25@12.00	8.00@8.35	9.85@10.50	8.75@9.25	9.85@10.50	8.75@9.25
Stove.....	Philadelphia...	2.39	9.25@11.00	8.15@8.35	9.85@11.00	8.90@9.25	9.85@11.00	8.90@9.25
Stove.....	Chicago...	5.06	12.00@12.50	7.35@8.25	9.60@12.50	8.00@8.35	9.60@12.50	8.00@8.35
Chestnut.....	New York...	2.34	9.25@12.00	8.00@8.35	9.85@10.50	8.75@9.25	9.85@10.50	8.75@9.25
Chestnut.....	Philadelphia...	2.39	9.25@11.00	8.15@8.35	9.85@11.50	8.90@9.25	9.85@11.50	8.90@9.25
Chestnut.....	Chicago...	5.06	12.00@12.50	7.35@8.35	9.60@12.50	8.00@8.35	9.60@12.50	8.00@8.35
Range.....	New York...	2.34		8.25		9.00		9.00
Pea.....	New York...	2.22	7.50@11.00	6.15@6.30	5.50@6.50	6.15@6.65	5.50@6.25	6.15@6.65
Pea.....	Philadelphia...	2.14	7.00@9.50	6.15@6.20	6.00@7.25	6.35@6.60	6.00@7.25	6.35@6.60
Pea.....	Chicago...	4.79	7.00@8.00	5.49@6.03	6.00@6.75	5.40@6.05	6.00@6.75	5.40@6.05
Buckwheat No. 1.....	New York...	2.22	5.25@6.25	4.00@4.10	1.75@2.50	3.50	2.50@3.25	3.50
Buckwheat No. 1.....	Philadelphia...	2.14	5.00@5.50	4.00	2.00@3.50	3.50	2.00@3.50	3.50
Rice.....	New York...	2.22	2.75@3.00	2.75@3.00	1.35@2.50	2.50	1.75@2.50	2.50
Rice.....	Philadelphia...	2.14	2.75@3.00	2.75@3.00	1.50@2.50	2.50	1.50@2.50	2.50
Barley.....	New York...	2.22	1.65@2.00	1.50@2.00	1.25@1.50	1.50	1.25@1.50	1.50
Barley.....	Philadelphia...	2.14	1.50@2.00	2.00	1.00@1.50	1.50	1.00@1.50	1.50
Birdseye.....	New York...	2.22		2.10		1.60	1.50	1.60

* Net tons, f.o.b. mines. † Advances over previous week shown in heavy type, declines in italics.



Coal Age Index of Spot Prices Bituminous Coal F.O.B. Mines

	1924		1923	
	Jan. 14	Jan. 7	Dec. 31	Jan. 15
Index	182	182	179	365
Weighted average price.....	\$2.20	\$2.20	\$2.17	\$4.42

This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States weighted first with respect to the proportions each of slack, prepared and run-of-mine normally, shipped, and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke, 1913, 1918," published by the Geological Survey and the War Industries Board.

days ago those sizes were much in demand. This applies to the Standard and Mt. Olive fields. Generally speaking, conditions are considered good now, but it is temporary on account of the weather.

Kentucky Business Is Fair

Domestic demand in Louisville and throughout most of Kentucky continues fair following the cold wave, which was the most severe that Kentucky has felt since 1918. However, dealers are not buying greedily from the mines, for previous stocks are not all cleaned up. Some dealers are willing to sell at low prices rather than take a loss on degradation of long-held piles in their yards. But even at that, lump coal at \$7@8.50 seems high to the public and there are reports of an increase in the use of gas and oil.

Conditions at the mines show little change of note. There is about 15c. to 25c. a ton spread between eastern and western Kentucky on most sizes, the eastern being the higher, but gas coal and non-gas are selling on a parity.

Northwest Slumps Again

The fearful burst of trade that started with the severe weather of two weeks ago resulted in two things: The docks could not fill the immediate orders fast enough and

shippers from everywhere began rushing thousands of cars of coal into the Northwest region, thinking that there was bound to be a good market for it. The market was good for a few days, owing to the congestion of business, but it slumped at once with the arrival of mild days and now the territory is full of all sorts of coal.

Shipments off the docks were heavy for awhile and the general upturn brought more public utilities and commercial building owners into the market. However, there was little or no change in the market quotations around the Head-of-the-Lakes except that Hocking screenings spread a flat \$3.50 price to \$3.50@3.75. Some anthracite has been moving from Duluth to Winnipeg, especially egg, which is often slow and frequently is held over at the end of the season. Around Milwaukee the market during the week was fairly active.

West Runs Strong

Three weeks of winter have brought joy to all those of the Southwest who depend on coal for a living. In three days mine tracks were cleared of "no-bills." Two hundred and fifty cars were in distress in Kansas one Saturday night. By Tuesday noon every one had been sold and dealers, who had disregarded warnings from operators and jobbers that just such a situation might develop, were crying for more. For the first time this season mines are working full time through Kansas, Missouri and Oklahoma. Those in Arkansas that are open also are running full time.

In Colorado the pick-up has been a little less lively, but lost time due to "no market" has been reduced to about 30 per cent. The cold snap in Salt Lake City and other sections of Utah has stimulated business. Working time has jumped from less than three days a week to around four and a half days. Circulars are firmer all around. Few "no bills" are accumulating now.

Better Demand for Domestic Coals

There was a slightly improved demand for domestic coals in the Ohio markets following the cold wave the first week of the year, but it did not last. Additional orders were placed and some of these were cancelled when milder weather made its appearance. Steam business was not stimulated and with the large reserves on hand users are not inclined to make any additions to their stocks. Railroad buying is on the increase, as some are buying to guard against a suspension on April 1. Screenings fell slightly in price as a result of a better production of lump. Production of the mines reporting to the Southern Ohio Coal Exchange during the week ended Dec. 29 was 91,952 tons from 447 mines having a full-time capacity of 569,250 tons. Of the deficiency "no market" was responsible for a loss of 440,789 tons.

More vigor was injected into the Cincinnati market by the cold snap, and concessions on sales have been practically cut off. Domestic coals are moving well, while the call for slack has been falling off. The smokeless coals have improved their position. While the quotations for the general market of coals range from \$2.25 to \$3.50 for lump and \$1.25 to \$2.50 for mine-run quotations on what have lately become known as exceptional coals, such as Yellow Jacket, Southern Gem, Millers' Creek and some of the high free burning gas coals of West Virginia have ranged from \$3.75 to \$4 for lump and around \$2 on mine-run. The cold weather drained retailers' stocks at Cleveland, causing them to enter the buyers' market, improving conditions slightly. Steam-coal consumers are buying as they need the coal and there is little additional storing done.

The three-day cold snap did not affect the Pittsburgh market to any great extent. Demand for domestic coals did not improve, but industrial consumption remains heavy. Steel operations are improving and running fairly well, adding to the consumption of coal. Retail dealers have good-sized stocks on hand, while cellar bins are well filled. A slight improvement was noticed in the central Pennsylvania field the first week of the year; the number of idle mines is given as 365. The situation at Buffalo shows no material change. Slack is the strongest of all sizes.

Few Developments in New England Market

Aside from slight indications of firmer prices in some directions there are few developments of any consequence in New England. There has been no appreciable stimulus to buying; the somewhat enhanced prices for spot shipment are due rather to a much restricted supply available, not alone at the loading piers but at the various rehandling points as well. The industries are well supplied and we hear of no railroads or power plants that are likely to enter the market during January for any comprehensive tonnage; on the contrary there are decided letdowns in anticipated consumption, due partly to less business and partly to the mild weather. Many of the streams are running full, unimpeded by ice, and in general there are few points open to the energetic sales agent keenly anxious to place coal.

At Hampton Roads the amount of coal on wheels is relatively small, and while sales are only scattering, the average net return is rather better than a week ago. An Italian contract covered some weeks ago was the means of keeping one group of Pocahontas operations at work for enough time to tide over the period of maximum dullness, and now with the assistance of contracts on many of which during the fall delivery was deferred the agencies are able to pinch along with an occasional sale at \$4.75@4.90 per gross ton f.o.b. vessel.

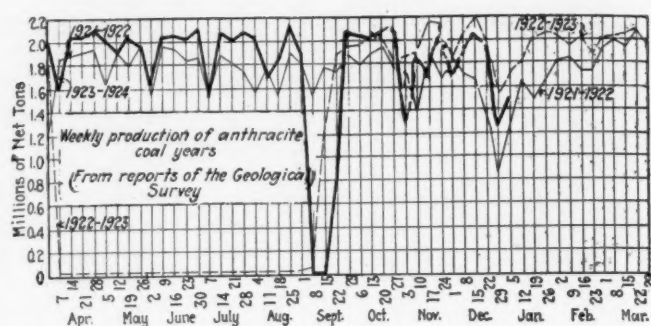
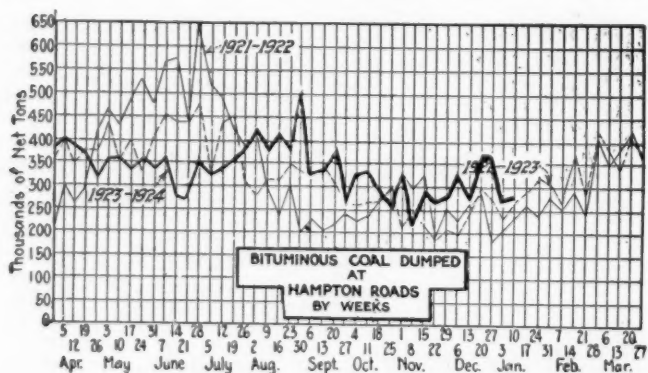
Navy standard coals are being held at better prices also by factors at this end. Not much is being moved at the figures asked, but on the other hand the coal is in comfortable storage and there is practically no distress supply that it is incumbent upon anybody to dispose of within a limited time. To that extent the market is in better position.

There is no change all-rail. A few shippers of the quality grades profess to hear tidings of better results, but as yet there is no perceptible reaction in this territory. There are those who are even beginning to propose contracts for the coming year, but for the present they are likely to meet with a cool reception. Talk of a possible strike seems to rouse no interest whatever among buyers in New England; they recall that in 1922 the non-union fields were for a long period able to care for current needs, and besides, the price of coal is not the large factor in production costs it once was and only in a few lines is there much disposition to purchase supplies far in advance of probable use. It has been a season notable for spontaneous combustion, and not only was coal that was taken on early a poor purchase but there were heavy expenses resulting from unusually large reserves. This will all have a bearing on the inclination of the buyer as he faces the next coal year.

Seaboard Market Quiet

There is very little activity in the spot soft-coal market along the Atlantic seaboard. Contract coals move well, however, and prices are sustained. A little contracting is reported and some operators report that December's business was as strong as that of last January. Increased inquiries are reported by some shippers, while some assert that the output of their mines is sold up for the present month. Cars at the New York terminals ranged from 1,812 to 2,105 during the first five days of last week.

There was no improvement in the soft-coal market at Philadelphia last week. There is a fair demand and some



contracting has been reported. Consumers are not anxious to enter into a contract agreement. While there is no boom in evidence, manufacturers show signs of becoming more active. No note of encouragement is evident at Baltimore. Demand for both steam and gas coals is poor. A firmer market is predicted during the next few weeks. Comparatively little change was noticed in the West Virginia markets, due to the change in weather conditions. A little spurt affected the domestic market at Birmingham and the cold weather occasioned many new orders for domestic coals, which aroused the spot market.

Anthracite Situation Easier

Unseasonable weather with fair shipments of hard coal resulted in an easier market for domestic sizes at New York and also lower quotations for independent coals. Retail dealers hesitate before buying premium coals and will do so only when it is absolutely necessary. Stove and chestnut are the most wanted sizes. At both New York and Philadelphia small orders comprise most of the new business. Consumers are well supplied. Pea coal is moving well in the Philadelphia territory and dealers have made inroads into their stockpiles. Retail dealers at Baltimore had a sudden rush of orders early last week, and while shipments have not been heavy, there is a fair supply in most yards.

Production of beehive coke in the week ended Jan. 5 was 234,000 net tons as compared with 223,000 tons the previous week.

Coal-Mine Development in West Virginia

Fifty new mine plants were put in operation in West Virginia during the fiscal year ended June 30, 1922, according to the annual report of the State Department of Mines. In the same period 43 new power plants were constructed and 81 fans.

One of the most important equipment improvements made, indicating at the same time the growth of the industry, was the purchase of 8,235 mine cars, the Logan field leading with 1,329, the McDowell mines coming second with 1,144 cars, followed by Fayette mines with 1,113 and Raleigh mines with 1,070. In all 85 new tipples were built, Logan having 9 of such structures to its credit, Raleigh 8, Fayette 7, Greenbrier 7 and Monongalia 7.

Companies operating in the state built 828 new houses for miners, Wyoming mines building the largest number, 114. Another important addition to equipment was locomotives. There were 187 new locomotives put in use, Logan mines obtaining the largest number, 35. McDowell and Raleigh county mines purchased 23 and 24 locomotives, respectively. There were 124 new mine openings; Preston County led in such development, with the opening of 18 new mines, McDowell County ranking next with 11 new openings.

Car Loadings, Surpluses and Shortages

	Cars Loaded	
	All Cars	Coal Cars
Week ended Dec. 29, 1923.	615,431	112,410
Previous week	877,257	183,377
Same week in 1922.	704,224	172,132
	Surplus Cars	
	All Cars	Coal Cars
Dec. 31, 1923.	312,338	149,409
Same date in 1922.	14,981	3,651
Dec. 24, 1923.	237,343	115,071
		Car Shortage

Foreign Market And Export News

Holidays Curtail British Coal Output; Coal Plentiful, Market Strong

Production of coal in Great Britain during 1923 was 278,501,000 tons, the highest recorded except for 1913, according to Board of Trade statistics. In the latter year the output was 287,412,000 tons, while last year it amounted to 251,850,000 tons. Output during the last week of 1923 was curtailed by the holiday season and amounted to 3,353,000 tons as compared with 5,886,000 tons the previous week, and 5,956,000 tons the week ended Dec. 15, according to a cable to *Coal Age*.

The labor situation is causing some uneasiness and loadings are slower due to the refusal of the tippers to work under the three-shift system, according to newspaper dispatches. Coal is plentiful, however, and the market remains strong.

The Welsh steam coal market continues in a strong position. There is a shortage of business and deliveries are somewhat behind, but orders on the books indicate that most of the mines will be heavily engaged well into January.

Inquiry from Europe is active, while business with Italy, South America and some of the Eastern countries is increasing. Belgium is inquiring strongly for coking coal.

The Newcastle market is also quiet. Nearly all kinds of coal are in good demand, best steams have improved slightly and there is a strong demand for gas coals.

Welsh Collieries Merge

A merger involving four large collieries near Swansea has been affected according to reports received by the Department of Commerce at Washington from Consul A. B. Cook, of the State Department stationed at Swansea. The collieries involved are the Great Mountain Collieries, the Ammanford Collieries, the Pontyberem Collieries, and the New Dynant Collieries. The new concern will be known as The United Anthracite Collieries, Limited, with a nominal capital of £2,500,000, of which £1,600,000 will, it is stated, be

offered to the public in the near future. The collieries involved are all important Welsh collieries, the oldest having been registered in 1891 and the newest in 1914. They employ at present about 3,000 workmen, and the annual total output of anthracite coal is about 500,000 tons.

This is the second important combine effected in the Welsh anthracite colliery field within the past six months, and the third important merger in the whole Welsh colliery field.

The new combine is further evidence of the marked inclination of Welsh industries to form into combines.

Less Coal at Hampton Roads

The coal market at Hampton Roads tightened noticeably last week, largely because of reduced supplies which was thought attributable to the reluctance of operators to resume full-time work after the holidays. Inquiries had not increased, however, and demand was only slightly improved.

Movement coastwise was slightly better, though retarded to some extent by recent storms. Bunker business was dull. Some foreign movements were noted, although not on the increase.

The tone of the market was firm, though higher prices were regarded as temporary. Shippers were exerting considerably more energy in booking cargoes, and increase in shipments was predicted on all hands.

French Industry Dull

Dullness continues in the French coal market, with supplies sufficient to meet the demand. Industry is quiet in all branches. Due to the excessive cost of British coal there is more buying of French coals. Mild weather affects the demand for house coals, and as money is scarce the "coalman" is only called upon when absolutely necessary. Retail yards are well stocked and dealers are not anxious to replace the small quantities of coal they sell.

The Belgian coal market is quiet, prices are easier and offers are made

to French buyers under the official tariff quotations, which would ordinarily attract buyers, were market conditions more satisfactory. French coal exports to Belgium during November amounted to 101,000 tons, while Belgian exports to France were 133,733 tons.

During November imports of coal to France amounted to 2,300,154 tons as compared with 1,935,821 tons in October. Coke imported was 431,592 tons as compared with 282,805 tons in the previous month. France exported 206,277 tons of coal in November as compared with 121,915 tons in October and 65,048 tons of coke as against 44,082 tons in October.

Export Clearances, Week Ended Jan. 12, 1924

FROM HAMPTON ROADS	
For France:	Tons
Amer. SS. El Monte.....	1,896
Amer. SS. El Paso.....	1,791
For Brazil:	
Br. SS. Severnmede.....	5,128
Br. SS. Penthaw.....	6,211
Du. SS. Vredenburg.....	10,142
For Cuba:	
Br. SS. Magdala.....	7,245
Amer. Schr. Margaret Thomas.....	1,599
For Italy:	
Ital. SS. Maria Enrica.....	10,871

FROM BALTIMORE	
For France:	
Fr. SS. Joseph Magne.....	6,358
For Chile:	
Amer. SS. Republic.....	2,203
Amer. SS. Republic (Coke).....	1,653
For Porto Rico:	
Amer. SS. Gov. John Lind.....	436
For Italy:	
Ital. SS. Ignazio Florio.....	7,100
For Uruguay:	
Gk. SS. Agios Ioannis.....	6,000

Hampton Roads Pier Situation

N. & W. piers, Lamberts Pt.:	Jan. 3	Jan. 10
Cars on hand.....	1,229	1,274
Tons on hand.....	77,320	69,222
Tons dumped for week.....	134,028	124,464
Tonnage waiting.....	15,000	25,000

Virginian Ry. piers, Sewalls Pt.:		
Cars on hand.....	855	774
Tons on hand.....	56,800	52,300
Tons dumped for week.....	37,752	50,275
Tonnage waiting.....	1,455	6,472

C. & O. piers, Newport News:		
Cars on hand.....	1,441	1,000
Tons on hand.....	75,500	51,805
Tons dumped for week.....	65,196	75,933
Tonnage waiting.....	635	1,855

Pier and Bunker Prices, Gross Tons

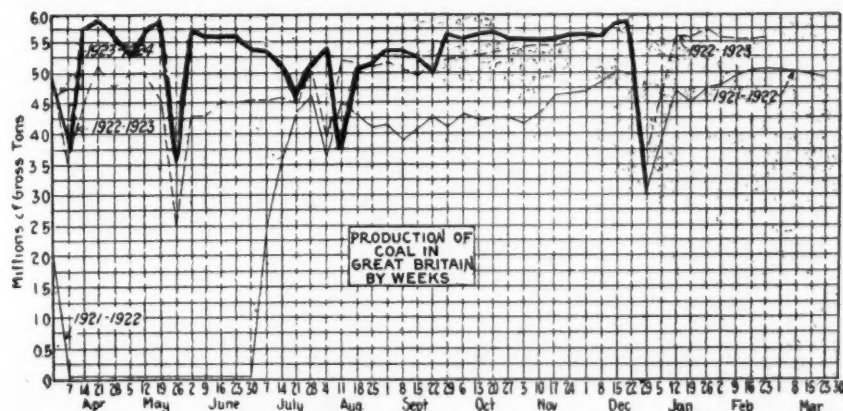
PIERS		Jan. 5	Jan. 12†
Pool 9, New York.....	\$5.00@ \$5.25	\$5.00@ \$5.25	
Pool 10, New York.....	4.75@ 5.00	4.70@ 4.90	
Pool 11, New York.....	4.50@ 4.75	4.60@ 4.70	
Pool 9, Philadelphia.....	4.90@ 5.20	4.90@ 5.20	
Pool 10, Philadelphia.....	4.50@ 4.90	4.50@ 4.90	
Pool 11, Philadelphia.....	4.25@ 4.60	4.25@ 4.60	
Pool 1, Hamp. Roads.....	4.85	4.90@ 5.00	
Pools 5-6-7 Hamp. Rds.....	4.25	4.25@ 4.35	
Pool 2, Hamp. Roads.....	4.50@ 4.60	4.75	

BUNKERS		Jan. 5	Jan. 12†
Pool 9, New York.....	5.30@ 5.55	5.30@ 5.55	
Pool 10, New York.....	5.05@ 5.30	5.00@ 5.20	
Pool 11, New York.....	4.80@ 5.05	4.90@ 5.00	
Pool 9, Philadelphia.....	5.15@ 5.55	5.15@ 5.55	
Pool 10, Philadelphia.....	4.90@ 5.20	4.90@ 5.20	
Pool 11, Philadelphia.....	4.65@ 4.90	4.65@ 4.90	
Pool 1, Hamp. Roads.....	4.85	4.90@ 5.00	
Pool 2, Hamp. Roads.....	4.50@ 4.60	4.75	

Current Quotations British Coal f.o.b. Port, Gross Tons

Quotations, by Cable to Coal Age		Jan. 5	Jan. 12†
Admiralty, large	29s. @ 30s.	28s. @ 29s.	
Steam smalls....	21s. @ 22s.	20s. @ 21s.	
Newcastle:			
Best steams.....	24s. 3d. @ 25s. 6d.	24s. @ 25s.	
Best gas.....	24s. @ 25s.	25s.	
Best bunkers....	25s. @ 26s.	24s. 6d. @ 25s.	

† Advances over previous week shown in heavy type, declines in italics.



Traffic News

Hearing on Rate Increase

A hearing will be held by the Coal and Coke Committee, Trunk Line territory, in New York City on Jan. 24 on the carrier's proposal to advance rates on pea and smaller sizes of anthracite from mines on the D., L. & W. R.R. and D. & H. R.R. to Donnacona, Que. The proposed rates are \$5.65 for pea coal; \$5.28 for buckwheat No. 1 and \$4.52 for buckwheat No. 2 and smaller sizes, the increases amounting to 6c. on pea coal; 4c. on buckwheat No. 1 and 6c. on buckwheat No. 2 and smaller coals.

Coal Hearings Assigned

Hearings in coal cases have been assigned as follows to the Interstate Commerce Commission: Oklahoma City, Feb. 4, Superior Coal Co. vs. Pittsburgh & West Virginia; Omaha, March 10, Intermont Coal & Iron Corporation vs. Southern Ry.; Washington, March 11, Hood Coal Co. vs. Monongahela Valley Traction Co.; Denver, March 14, Victor American Fuel Co. vs. Denver & Salt Lake.

Calls Rates Unreasonable

Rates applied on coal between Murphysboro, Ill., and Mitchel, S. D., are unreasonable, in the opinion of Examiner Flynn, of the Interstate Commerce Commission. The case was brought by the Consolidated Coal Co., of St. Louis.

No Unjust Discrimination

The failure of the Chesapeake & Ohio Ry. Co. and the Virginia Ry. to make arrangements whereby mines of the Winding Gulf Colliery Co. would be enabled to avail themselves of the services, facilities and rates of either does not subject the coal company to unjust discrimination, in the opinion of Warren H. Wagner, an Interstate Commerce Commission examiner.

The Winding Gulf Co. points out that the railroads refuse to accord its mines the same treatment as is accorded other mines on the Kanawha, Glen Jean & Eastern. The defendants were asked to interchange at Pemberton and to afford facilities equal to those afforded the other mines. The examiner reaches the conclusion, in a report to the commission, that a railroad must be allowed some latitude for the exercise of business judgment and discretion in such a situation. A similar finding was made in the case of the Ragland Coal Co. in its case against the Virginian Ry.

Mines Supply 60 per Cent of Freight Moved

The mining industry contributed more than 60 per cent of all freight moved by railroads of the country during the third quarter of 1923, according to figures just compiled by the Interstate Commerce Commission, which show that all shipments offered aggregated 347,323,119 tons in the quarter review. Of that total, 205,254,449 tons were products of mines.

While the increase in all tonnage over the third quarter of 1922 was 29 per cent, the products of mines tendered in the third quarter of 1923 was 47.84 per cent greater than the movement in the corresponding quarter of the year preceding.

The Eastern district, by contributing 93,568,493 tons, tendered more mineral shipments to the railroads than any other subdivision of the country. The Western district was next with 68,599,074 tons. The South originated 23,180,655 tons, while the Pocahontas district contributed 19,906,227 tons.

Heavy Coal Traffic on N. & W.

The Norfolk & Western Ry. handled over its lines during 1923 30,662,850 tons of coal from the four districts it serves in southern West Virginia and Virginia. According to the records of the road the Pocahontas field produced 15,911,200, or more than half the total, Tug River district 4,399,850 tons, Kenova-Thacker district 8,683,400 tons and Clinch Valley district 1,668,400 tons. According to the records of the Pocahontas Operators Association the output in that field last year amounted to 15,397,038 net tons, as compared with 16,130,974 tons in 1922, 13,043,942 net tons in 1921 and 15,421,288 tons in 1920.

Publications Received

Change Houses in the Lake Superior Region, by Cleve E. Kindall. Bureau of Mines, Washington, D. C. Pp. 31; 6x9 in.; illustrated. Plans and description of a model change house in the Lake Superior region; many of the suggestions, however, can be applied to a change house in any locality.

Proceedings of The Rocky Mountain Coal Mining Institute, held at Salt Lake City, Utah, Aug. 27-29, 1923. Pp. 31, 6x9 in.; illustrated.

Report of the State Tax Commission, New York, 1922. Pp. 530; 6x9 in.; tables.

Report Department of Mines, Kentucky, 1922, Part I, by L. Blenkinsopp, chief inspector of Mines. Pp. 337; 6x9 in.; illustrated.

Report of Department of Mines, West Virginia, for fiscal year ending June 30, 1922; in two sections; by R. M. Lambie, chief of Department of Mines. Pp. 388; 6x9 in.; tables.

Efficiencies in Use of Bituminous Coking Coal as Water-Gas Generator Fuel, by W. W. Odell, Bureau of Mines, Washington, D. C. Technical paper 274. Gives re-

sults of an investigation relating to the manufacture of water gas conducted by the Bureau of Mines, Illinois State Geological Survey Division, and the Engineering Experiment Station of the University of Illinois.

Association Activities

The West Kentucky Coal Bureau Louisville, composed of operators from the two Western Kentucky operators associations, as well as independents, elected these officers at the annual meeting in Louisville on Jan. 8: President, Percy D. Berry, president of the Providence Coal Co., Providence, Ky.; Vice-President, James D. Overall, Reinecke Coal Mining Co., Madisonville; Secretary, C. E. Reed, Louisville; Executive Committee: Chairman F. P. Wright, president of the Crescent Coal Co., Bevier; F. D. Rash, president of the St. Bernard Mining Co., Earlington; Brent Hart, president of the Hart Coal Corporation, Morton's Gap; H. L. Tucker, president of the Rockport Coal Mining Co., Central City; M. B. Lanier, president of the Norton Coal Mining Co., Nortonville, Ky., and Birmingham, Ala.; A. W. Duncan, secretary of the W. G. Duncan Coal Co., Greenville, and C. F. Richardson, president of the West Kentucky Coal Co., Sturgis, Ky. Mr. Richardson was president of the association during the year just closed.

Obituary

George S. Baldwin, 88 years old, of Kenosha, Wis., died at his winter home at Pasadena, Calif., on Jan. 2. He founded the Baldwin Coal Co., which he directed for many years.

William K. Herzog, U. S. Consul at Vitau, Saxony, under Presidents McKinley and Roosevelt, died recently at his home in St. Louis after an illness of five weeks. For the past few years he was a special representative in St. Louis of the West Virginia Coal Co. Born in Basle, Switzerland, educated at Heidelberg and serving the United States for many years in consular work, he was well known to the local trade and was 59 years old. Besides a widow he leaves a grown son and daughter.

Michael W. O'Boyle, coal operator, of West Pittston, Pa., died at Miami, Fla., Jan. 9. He was born in Scranton, Pa., 70 years ago. He organized, with his two sons, the Pittston Coal Mining Co., disposing of his holding in the Alpine Milling Co. to devote his attention to mining interests. He had been a director of the Miners' Savings Bank, Pittston, and of the Citizens Electric Illuminating Co., of the same city.

Joseph Ruchaber, 47, for many years a coal operator in the Rich Hill district in Missouri, was found dead of heart failure recently in his apartments at Rich Hill.

Samuel L. Moore, aged 50 years, a member of the Moore Brothers Coal Co., operating mines at Emeigh, and who was a resident of Emeigh died in the Spangler hospital on Jan. 9 from injuries he received while driving mine cars from the mines. Recently the Moore mines have been working only on part time and the members of the firm were doing some of the outside work. Mr. Moore was born in Hollidaysburg in 1874 and had been connected with the mining industry for many years.

Coming Meetings

Northeast Kentucky Coal Association. Annual meeting Jan. 24, 1924, Ashland, Ky. Secretary, C. J. Neekamp, Ashland, Ky.

Rocky Mountain Coal Mining Institute, Winter meeting, Feb. 13-15, Albany Hotel, Denver, Colo. Secretary, Benedict Shubart, 521 Boston Bldg., Denver, Colo.

New England Coal Dealers' Association. Annual meeting March 20-21, Boston, Mass. President, W. A. Clark, Boston, Mass.

Canadian Institute of Mining and Metallurgy. Annual meeting March 5-7, King Edward Hotel, Toronto, Ontario, Canada. Secretary, G. C. Mackenzie, Drummond Building, Montreal, Quebec, Canada.

News Items From Field and Trade

ALABAMA

The State Board of Mine Examiners will hold a session in the offices of Chief Mine Inspector C. H. Nesbitt, Lincoln Life Building, Birmingham, Jan. 21 to 24, to examine applicants for positions of mine foreman, first and second class, and fireboss on qualifications necessary to fill such positions in coal mines of the state.

George B. McCormack, prominent coal operator, has instituted suit in the Chancery Court of Walker County, at Jasper, to recover an alleged half interest in the site on which is located the Gorgas steam plant, in which the government recently sold its interest to the Alabama Power Co., the latter having installed and owned the initial units. Mr. McCormack claims that his interest in the power plant site has never been acquired by the power company.

The Pratt Warrior Coal Co. of Jasper has twenty-five new homes under construction at its Ivey Bluff mines on the Warrior River in the southern part of Walker County. The Pratt Warrior recently leased the Ivey Bluff mines to the Gulf States Portland Cement Co., of Demopolis, which has increased the output of the mines to 300 tons of coal daily. With the addition of this housing of more miners, another substantial increase in production will be made. The cement company has installed motor haulage at these mines. Ivey Bluff mines are located near the banks of the Warrior River, several miles from a railroad and all coal is transported down the river in barges.

The U. S. Supreme Court in a decision handed down Jan. 7, refused to order the Court of Claims to assume jurisdiction in a suit against the government by the Corona Coal Co. to collect \$107,431 alleged to be due on a railroad contract while the lines were under federal control, the difference accruing between a rate of \$1.96 1/2 a ton under the contract and \$2.40 per ton fixed by the Government Fuel Administration.

ARKANSAS

The Bernice Coal Co.'s mine at Russellville, has resumed work after having been idle since the tippie was burned October 16. A temporary tippie was erected. A full force of about 400 men works this mine.

COLORADO

The La Veta Coal Co. has been incorporated in Alamosa, with a capital of \$100,000, by P. Fern, A. H. Samuels and L. Jordan.

ILLINOIS

E. L. Stanton, for the past six years sales manager for the Lumaghi Coal Co., of St. Louis, severed his relations with that company Jan. 1, and is succeeded by C. V. Beck, who has been advertising and promotion manager for the Lumaghi Coal Co.

The Taylor Coal Co. of Chicago, has changed its name to the Franklin County Coal Co. during the process of absorbing the Bickett Coal & Coke Co.'s holdings and the consolidation of the Old Taylor properties with those of the Bickett interests. Herbert H. Taylor continues as president of the new concern and C. A. Bickett, after long years as a prominent figure in the Illinois coal industry, retires. Issue of \$2,750,000 first mortgage 7 per cent serial gold bonds of the new company is being offered for sale. The bonds mature \$137,500 annually from Jan. 1, 1925, to 1944, inclusive.

The tippie of the Centralia Coal Co. burned at Mine No. 5 recently at an estimated loss of \$100,000. The mine employed 850 men.

The No. 1 mine of the Bell & Zoller Coal Co., at Zeigler, broke its hoisting record this month by hoisting 7,700 tons in eight hours. This is the mine that ran the famous production race with Orient No. 1 two years ago, winning for the month's output but losing the one-day record which stands at 8,210 tons. Zeigler No. 2 mine has a record standing at 6,699 tons. The total tonnages of these two mines for the year

of 1923 is over 2,000,000 tons, which is rated as the highest tonnage in the world for any two mines. The output for the mines during the year in railroad cars would reach over 300 miles, or if the caboose of such a train was in Zeigler, the engine would be passing through Chicago.

The Chicago Wholesale Coal Shippers' Association on Jan. 9 in annual meeting elected these officers: President, P. H. Holland; vice-president, Roscoe B. Starek; treasurer, T. A. Brahm; secretary, George H. Merryweather; directors, Charles L. Derling, James Anderson, Tom C. Irwin, N. L. Walton, J. H. Weil and W. C. Hill, who is the retiring president.

INDIANA

F. D. Roberts, who has been serving as traffic manager of the Indiana Coal Merchants' Service Bureau, an organization composed of a large number of retail coal merchants of the state, has been appointed manager of the bureau, to succeed R. R. Yeagley, who has resigned.

KANSAS

A consolidation of the Midland Coal Co. and the Jackson-Walker Coal & Mining Co. has been effected by H. G. Kellogg, C. H. Markham and C. P. A. Clough, at Kansas City, Mo. The Midland Coal Co. will hereafter handle the affairs of both concerns. Operating principally in Kansas.

KENTUCKY

Estimates of 1923 coal production in Kentucky show an anticipated output of 36,000,000 tons, as against 42,000,000 in 1922, the peak year, and 38,000,000 in 1920. In 1922 with the national coal strike in effect, Kentucky operated full time, with a large car supply, and did a great business. A loss of five to six millions tons over 1922 is predicted, which is quite good in view of steady over production in all fields, and keen competition for business at giveaway prices in the autumn.

Coal interests of Kentucky are all set for the bitterest legislative fight on record, the legislature having convened Jan. 8 after a lay-off since 1922. There has been stiff support for a coal-tonnage tax, which has the backing of the agricultural and land-owning interests. Such bills have been defeated in the past. At the last session a sum was appropriated for a study of the coal-taxing problem, prior to action, this giving the coal interests two years' grace, which, however, has not helped the cause any.

The Elkhorn Collieries Co., Trenton, Ky.; Dudley Coal Co., Backey; Marion Coal Co., Rockhouse; Ajax Coal Co., Lotts Creek; and Hlmyar Coal Co., at Domino, are planning to resume operations after being down for some time.

Below zero weather on Jan. 5 prevented continued rise of the Ohio after it was about 4 ft. above the danger line, and probably saved business interests of Kentucky, including river coal companies, a good deal of money.

The Little Pond Coal Corp. has been formed and will develop property at McAndrews. H. G. Happersett, the treasurer and construction engineer, is located at Route 3, Ronaoke, Va.

Don D. Walker, for some years in charge of the Jeffersonville and New Albany (Ind.) divisions of the St. Bernard Mining Co., has taken charge at Louisville as well, and will now look after business of the three cities. W. B. Gathright resigned on Jan. 1 as manager of the Louisville office.

Notice has been filed of the dissolution of the Paint Cliff Mines Co., Louisville, claimants being asked to present all claims to Treasurer J. H. Schneider, 715 Inter Southern Building, Louisville, within sixty days.

The Reliance Coal & Coke Co., of Glomawr, is reported to have purchased the Defiance Coal Co., of Defiance, on Carr's Fork.

MISSOURI

Citizens of Moberly are making an effort to revive the old Busy Bee mine, in that city, which has been closed because of an unpaid payroll. More than 150 merchants and others attended a meeting at Moberly and steps were taken to continue operation by some form of public aid to the operating company.

David and John S. Lodwick, of Mystic, Ia., who recently purchased the Mosby mine at Mosby are making extensive improvements on the plant. They have installed much new machinery and have rebuilt the entire plant since purchasing it from the former owners. The mine is now turning out 100 tons of coal a day. This will be increased to 150 tons a day as soon as the plant is under full headway.

NEW YORK

The New York Stock Exchange on Jan. 10 admitted to trading on a "when issued" basis the 1,400,000 shares of capital stock of the Reading Coal & Iron Corporation without par value. Certificates of interest of the same company also were listed. The Exchange's Committee of Securities has ruled that inasmuch as due bills on Reading rights can no longer be transferred with stock certificates, all deliveries, beginning Jan. 10, must be accompanied by due bills for said rights until the respective stocks sell ex rights.

Judge Learned Hand, in the U. S. District Court at New York on Jan. 8 signed an order in the dissolution suit instituted by the government against the Lehigh Valley Railroad Co., appointing four trustees to exercise certain rights specified in the dissolution decree in relation to the capital stock of the Lehigh Valley Coal Co. and Cox Brothers & Co., Inc. The trustees for the Lehigh Valley Coal Co. are William Potter and the Girard Trust Co., of Philadelphia; the trustees for Cox Brothers, Inc., are Thomas R. Marshall of Columbia, Ind., and James Neale, Jr., of Minersville, Pa. The order provides that if there should come any disagreement among the members of the groups in the exercise of the duties imposed upon them as trustees, application for advice shall be made to the court.

Arthur Hamilton and Harry W. Maynard, of the Central Railroad of New Jersey, were elected directors of the Coal & Iron National Bank, of the City of New York, at a meeting of stockholders Jan. 8, 1924.

The Davis Coal & Coke Co. has opened an office in the Singer Building, New York City, with H. C. Pridham as manager and D. W. Bowden, sales agent. Mr. Pridham and Mr. Bowden formerly were connected with B. Nicoll & Co. and are well known to the coal trade.

P. A. Paddock, formerly of Dexter and Carpenter, Inc., is president of the Paddock-Walther Coal Corporation, which has just opened offices in New York City. W. M. Walther is secretary-treasurer of the corporation. Others connected with the new concern are A. Themans, C. G. Appleton and George M. Carpenter, Jr., all formerly associated with Dexter & Carpenter. Mr. Themans will look after the anthracite and domestic bituminous-coal trade, Mr. Appleton after the tidewater, coastwise and transportation business, while Mr. Carpenter will have charge of the Cincinnati (Ohio) office, he having occupied a similar position with the old Dexter & Carpenter firm.

NEW JERSEY

Governor Silzer, in his annual message to the State Legislature, told the members of that body that the anthracite problem must have earnest attention and that some relief must be obtained for the consumer. He advised the following: "Enactment of a statute which would protect the consumers of this state against all unlawful practices and profiteering after the coal gets within the state; an appeal by the state to prevent extortionate and unlawful practices while the coal is in interstate commerce; an appeal to the Governor and Legislature of Pennsylvania for a statute regulating the industry there and for relief from the agencies which raise the price and limit the output."

A bill introduced in the New Jersey State Senate by Senator Woodruff of Camden, provides that 2,240 lb. shall be the legal weight for a ton of anthracite. Assemblyman Powell, of Burlington, has introduced in the House a concurrent resolution which would request Congress at once to direct an investigation of the anthracite industry.

NORTH DAKOTA

The Saskatchewan Government has contributed to the plant of the Dakota Lignite Products Co., at Minot, a gas washer, condenser and exhaust system and fire brick tile for oven use. The Canadian Government is interested in the development of the plant and seeks to aid it in this manner.

OKLAHOMA

Operators in the Henryetta field of Oklahoma having mines on the Frisco R.R. are aroused over that company's determination to enforce ruling No. 9 of the Oklahoma Corporation Commission, governing car distribution. The operators declare that such action, if enforced, will mean the cutting down of the mines' running time, thus causing hardships to hundreds of miners and resulting in the shutdown of several mines. Under the old ruling if a mine's capacity was ten cars a day, for example, and half of this could be loaded as "no bills," the mine could still get its full quota of cars for the next day. Under the new ruling the railroad will charge the "no bills" cars against the quota of cars for the next day.

The Henryetta Coal Mining Co. of Henryetta, established in 1906 and one of the oldest in the Henryetta field, has been forced to abandon its shaft, due to a squeeze.

PENNSYLVANIA

C. E. Leshar has been appointed assistant to the president of the Pittsburgh Coal Co., Pittsburgh. The appointment became effective Jan. 1 and Mr. Leshar's headquarters will be in Pittsburgh, according to an announcement by W. K. Field, president of the company.

James B. Neale, largest independent operator in the Schuylkill field, has returned from Canada with the information that the Canadian Pacific R.R., which substituted the use of oil for anthracite in many departments, has returned to anthracite. Oil did not prove satisfactory and was not always to be had when wanted, he said.

Marcus A. Walker, who for the past eight years has been mechanical engineer for the Hudson Coal Co., has resigned, to accept a position as district manager of the Chance Coal Cleaner Co., with offices in Scranton.

The Jordan Coal Co., composed of a group of Scranton independents, is rushing work on its new colliery between Quakake and Delano. Three eight-hour shifts are employed in the erection of a breaker.

The State Supreme Court on Jan. 8 upheld the constitutionality of the state anthracite tax law in an appeal from the decision of the Dauphin County Court in the case of the Dauphin County vs. the Philadelphia & Reading Coal & Iron Co. and other appellants. It is not known whether there will be any attempt made to get the cases into the federal courts. The cases decided in the Supreme Court will involve the whole Reading, Lehigh & Navigation, Alliance and Cranberry groups. There are several others, but these cases will cover those producing the greatest amount of tax.

The annual banquet of the Coal Club of Philadelphia will be held in the Bellevue-Stratford Hotel, Philadelphia, Jan. 31. Noah H. Swayne, president of the club, will act as toastmaster. The speakers will be Dr. J. T. Holdsworth, president of the Pennsylvania Joint Stock Land Bank; Ira Jewell Williams, of the Philadelphia Bar, and Charles L. Dering of Chicago, president of the American Wholesale Coal Association. The officers and executive committee of this latter association will be in Philadelphia for their quarterly meeting on Jan. 31 and will attend the banquet in a body. The banquet will be preceded by the annual election of officers.

According to an announcement made in Harrisburg on Jan. 7 by Secretary of Mines Joseph J. Walsh each of the fifty-two anthracite and bituminous mine inspectors in Pennsylvania may be given a month's leave of absence without pay. The action is necessary, press dispatches said, to conserve the department's fund, which would be inadequate were the force to continue on full time for the remainder of the biennium. As announced in Harrisburg Secretary Walsh will lay off the inspectors at the rate of several each month so as to not cripple the inspection work. Under the mine laws of Pennsylvania inspection in the anthracite regions must be made at

least once every thirty days. There is no specific number of inspections for the bituminous coal mines. By leaving off each inspector for one month, \$20,800 will be saved to the department.

Development of hard-coal operations in Quakake Valley, south and west of McAdoo, is being rushed at a rapid pace. The Panther Creek Valley company has opened workings on the mountainside and is employing three eight-hour shifts, as is the Candelmas Coal Co., of Wilkes-Barre, at Silver Brook.

During 1922 and 1923, according to a survey made by the State Geological Survey, approximately 200 new bituminous coal mines were opened in Pennsylvania. James D. Sisler, associate state geologist, has announced at Harrisburg. His report shows that the majority of the openings were in Allegheny, Cambria, Clarion, Clearfield, Fayette, Indiana, Jefferson, Somerset and Westmoreland counties. The report shows that about twenty-five mines in the Monongahela and Pittsburgh district have been reopened and pumped out for the purpose of removing pillars and working thin veins. Many of these mines have not been operated for thirty to fifty years and the increased value of the coal for coking and steam purposes is given as the reason for the reopenings. The Pittsburgh coking coal, the production of which is largely from mines in Westmoreland and Fayette counties, will be exhausted within a comparatively few years, it is said in the report, and the only large remaining area will be in Greene County. It is shown by the survey that the supply of Pittsburgh steam coal is about exhausted. Most of this is coming from the area about Allegheny County. The Morshannon bed, in Clearfield County, also is nearing exhaustion.

The State Department has approved the merger of the Springfield Coal Mining Co., the Bloomington Coal Co. and the Springfield Coal Co. into the Springfield Coal Mining Co. The new company has a capital stock of \$2,000,000 and George E. Metzger, St. Benedict, is the treasurer. The central office of the merged company is at Ebensburg.

Among the State charters issued are the following: Prospect Shaft Mining Co., Ramey, \$50,000 capital; purpose, mining, producing and selling coal and coke; incorporators, W. R. Minds, Ramey, treasurer; John H. Minds, Philadelphia, and George Minds, Ramey. Triangle Coal & Coke Co., Pittsburgh, \$25,000; mining and selling coal and coke; incorporators, William B. Atwood, Dormont; W. C. Maratte, Coraopolis, and George W. Kilpatrick, Pittsburgh. Raymond A. Siedel, of Philadelphia, is treasurer. Junction Coal & Coke Co., Pittsburgh, \$60,000; mining and selling coal and manufacturing coke; incorporators, D. L. Feick, Pittsburgh, treasurer; S. J. Minnick, Bruceton, and R. S. Porter, Broughton. Smutzinger Coal Co., Munson, \$50,000; mining coal and manufacturing coke; incorporators, Annie Smutzinger, Philipsburg, treasurer; Jacob Smutzinger, Philipsburg, and Fred Eisenhauer, Munson.

TEXAS

Dr. J. P. Spark and associates have purchased the mining plant and holdings of the Empire Fuel Products Corp., Inc., at Rockdale, and will operate them.

Charging that workmen's compensation insurance rates in Texas are unjust to lignite mine owners, five Texas coal companies have petitioned the State Insurance Commission to adjust the rates. The Texas operators contend that lignite rates in that state are based on conditions in Kansas, which they maintain, are far different from conditions in Texas. A hearing on the matter was held Dec. 10 at Austin.

UTAH

The U. S. Land office has auctioned a lease of 1,120 acres of land to the Union Coal Co. for a \$30 bonus. The minimum tonnage is to be 20,000 annually after the third year. Investment minimum is to be \$40,000. The royalty per ton is 10c.

WEST VIRGINIA

Frank Costanzo, of Warwood, president of the Wheeling Coal Co., announces that the Wheeling Coal Co. has purchased from the J. C. McKinley interests, of Wheeling, 1,000 acres of coal land near Warwood. The

company will increase its capital stock. Extensive construction work is already in progress and other improvements are contemplated.

Two large coal firms have been launched in Huntington by Captain R. R. Smith. The larger of the two companies—the Agee Coal Co. is capitalized at \$200,000. It will operate mines in the Logan County field, although its headquarters are to be in Huntington. The other company organized by the same people is to be known as the R. R. Smith Coal Co., capitalized at \$100,000. This company will act as a selling company only. Active in effecting the organization of the companies were R. R. Smith, W. P. Neekamp, G. I. Alexander, F. D. Clifford and E. H. Adams.

WISCONSIN

Milwaukee coal companies which operate docks on the upper limits of the Milwaukee River are somewhat disturbed over the fact that the city authorities evince a desire to close the river to large vessels by establishing fixed bridges across the channel in the interest of economy and uninterrupted street traffic. The Board of Harbor Commissioners will make a survey of the situation. In a matter of this nature the federal authorities have the final decision.

The Milwaukee-Western Fuel Co. will spend a large sum of money in improving what is known as Cherry Street dock on the Milwaukee River in Milwaukee. The dock will be straightened by the removal of a 10-ft. angular projection, thus allowing a 14-hold boat to unload without resorting to the use of scrapers to get the coal under the rigs. A new concrete dock will replace the present wooden structure.

WYOMING

The Employee's Magazine of the Union Pacific Coal Co. and the Washington Union Coal Co., published at Rock Springs, is a new publication for coal workers. This neat-looking 16-page paper, full of news and technical departments and illustrated with photographs and home-made cartoons, came into life with the January number. Mrs. Atlanta E. Hecker is the editor. The employees' magazine is the outgrowth of an idea of Eugene McAuliffe, new president of the companies.

CANADA

James B. McLachlan, deposed secretary of the United Mine Workers, District 26, has been denied a new trial by the Supreme Court, at Nova Scotia and may be required to serve the sentence of two years in Dorchester penitentiary, passed upon him following his conviction in October last on the charge of having published a seditious libel.

F. W. Gray, who has been associated with the British Empire Steel Corporation since its formation, and was previously with the Dominion Coal Co., has been appointed assistant to President Roy M. Wolvin.

A. J. T. Taylor, president of the Combustion Engineering Corporation, Ltd., Toronto, recently addressed the Engineering Institute of Canada and the Dominion fuel board, on "Powdered Coal as an Industrial Fuel." "This method of using fuel," said Mr. Taylor, "not only presents a means of improved results with the present available commercial fuels, but makes possible a still greater conservatism of those fuels by replacing them with many of the lower-grade local fuels that are at present unsuited for burning by ordinary means."

After years of experimenting in the production of peat at Alfred, Ont., the Dominion Government has interested private capital and a company has been formed in Montreal to take the plant over and operate it on a commercial basis. Three thousand tons of peat was produced last year and it is stated that peat can be produced at \$3.50 per ton. It cannot be shipped economically more than 100 miles. The total area of peat bogs in Canada is 27,000 square miles. Seven bogs within shipping distance of Toronto are capable of producing 26,500,000 tons.

A coking experiment with Nova Scotia and New Brunswick coal will be conducted at Hamilton, at the new coke ovens constructed by the local gas company, under the auspices of the Dominion Government on Jan. 21. The test will be made under the observation of Charles Stewart, Minister of Mines; Dr. Charles Cammell, Deputy Minister, and experts of the Mines Department.